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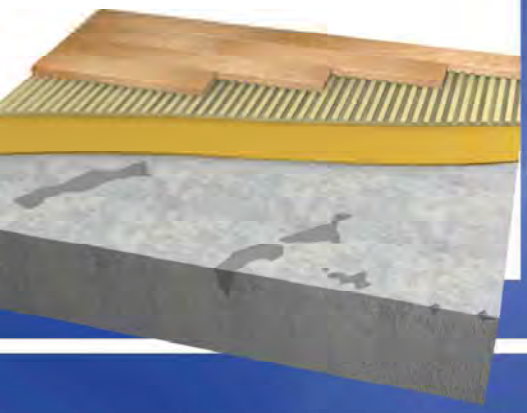

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# LETTER *From The Editor-In-Chief*

Whenever someone poses the question, "Are you married?" I've always had a customary response: "Yeah, I'm married, and to the most beautiful bride of all. Her name is Freedom." … I thought that was a really clever way of saying no.

Well, by the next time I write one of these editor's notes, I will have had to amend that reply to "her name is Shanna." By that time I will have taken The Plunge. I will have tied the knot. Gotten hitched. Settled down. And—according to most of my buddies—signed my life away (although my fiancée assures me that's not the case).

As I type this, I'm staring down the barrel of three days to go, and then The Bell Tolls for Me. Right now I'm working double-time to hammer out this current issue of *Extreme How-To* so I can vacate the premises after the big day and catch a flight to Jamaica for my honeymoon. I'll be there for a week. I'll fly back home to Birmingham, spend a day here, and then fly out to Vegas to spend a week at the National Hardware Show.

Everything seems to be moving at lightning speed these days. And I'm sure that when I make it back in town to kick things off with my new wife, my life will start to transform dramatically. I'll be in the land of "Honey Do" lists and joint tax returns. I'm a little nervous, sure, but also excited about what lies around the corner. The first order of business will be to find our first house together. We'll probably be remodeling a "fix 'er upper"—an adventure you'll likely see chronicled in the pages of this magazine.

So, now that I'll be joining the proud ranks of married coupledom, I'd like to extend a hearty "howdy" to the fellow husbands of America. Thanks for having me aboard. Now that I'm on your team, I look forward to years and years of wedded bliss (and her excellent lasagna).

And, to all my buddies still clinging fiercely to single life, I say this: Thanks for so many great years. I'll never forget all the fun times. You guys are the best, really. And it was nice knowing you.

Extreme How-To

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**Q:** *What is the SEER rating for an air-conditioning system?*

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**Q:** *Does tileboard make a good backsplash material?*

**A:** If you're looking for an alternative to expensive tile, tileboard may indeed present an economical solution. Companies such as Georgia-Pacific offer durable but decorative hardboard panels that are easy to maintain and install with standard tools. Designed for high-moisture areas, such as kitchens, baths and laundry rooms, tileboard features a tough, baked-on melamine finish, is water-resistant and can be cleaned easily with soap and water. Typically available in lightweight 4-by-8-foot panels, tileboard is available in a wide selection of colors and patterns in both flat and scored surfaces for lots of decorating options. The panels are glued in place with construction adhesive, rather than nailed, so as not to mar the decorative finish of the tileboard. You may need to transition the joint between the backsplash and countertop with some small-profile PVC trim. Then seal all seams with some mildew-resistant caulk.

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# Q&A Got a ?

*Questions About Home Building, Remodeling? Have Your Own How-To Tip? Visit our website at* ***www.extremehowto.com*** *and click on Home Repair Forum.*

**Q:** *I'm installing a new range hood, and I'd like to install the vent duct through the masonry wall directly behind it? How do I do this?*

**A:** Start by removing the fan and the electrical housing. Hold the hood in place on the wall and mark the locations for the duct. Set the hood aside and use a long masonry bit to drill holes at each corner of the duct location all the way through the exterior wall. On the outside of the house, draw the outline of the duct and drill at every inch along the perimeter. Use a hammer and cold chisel to chip out the brick. Push the wall cap into the hole to make sure it's long enough to reach the range hood. (If it's not, add an extension). Then drill installation holes for the duct cap and attach with masonry screws.

**Q:** *Our garage door jerks from side to side when going down. I've lubricated the rollers and track and inspected them for damage. I've also exchanged the springs on the door, but it didn't help. Any ideas how to make the door close smoothly?*

**A:** First, check the alignment of the tracks. Over time the garage shifts just like a house settles, and things can move around a bit. The tracks have to be plumb and parallel with each other to operate properly. If the rollers, tracks and springs are fine, then the culprit is likely one of the 3-inch pulleys. There should be two stud pulleys and two saddled pulleys. They wear out and need replaced after 10 years or so. Luckily, it's a cheap replacement—usually about five bucks each. **EHT**


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# Time to Sand

## An Overview of Today's Powered Hand Sanders

*Ridgid's new variable-speed belt sander has a sturdy feel, a multi-position front grip, a trigger lock and a speed-adjustment knob that are easy to reach.*

**By Matt Weber**

Sanding is messy but necessary work. Just about any project that involves wood requires sanding, like it or not. For big jobs, like refinishing floors, you'll need to rent a large walk-behind drum and disc sander. But for smaller around-the-house jobs, as well as contracted labor, an investment in sanding equipment is a sound one. From large power sanders to handheld sponge-backed sanding sponges, sanders are a line of tools required for everything from removing paint to buffing a smooth, glassy finish on a piece of fine furniture.

### BELT POWER

For the most aggressive material removal, the most productive tool is a powered portable belt sander. This tool will quickly smooth down and level a surface, as well as remove paint or glue lines. As with any power tool, more power produces more work and faster cutting. The bigger the sander, the meaner the bite. Amps can range from 5 to 11 in handheld models. The speed of the belt can range from 700 to more than 1,500 feet per minute, and belt speed also factors into cutting power. Portable sanders usually offer belt sizes running from 3-by-18- to 4-by-24 inches.

The large 4-inch wide and 3-by-24 models may be the best selection for sanding large, flat surfaces. However, the downside of the size of the saw lies in its weight and maneuverability. Large single-speed sanders can also prove too aggressive for certain applications. The big boys can really take away a lot of material to the point that the user can bugger up a project that requires a more delicate touch. All belt sanders are unidirectional; if you work them from side to side you'll get some ugly across-grain cuts.

To that end, variable speed is one feature to consider on a belt sander. This feature may add to the cost, but it affords more control of the sanding action. Both Ridgid models (models 2740 and 2720) we tested, feature a handy speed-control dial, as did the Hitachi SB8V2. We used these tools to round off the nose of stair treads on a deck. Variable speed made this chore easy, while the full-force of a larger single-speed sander may have resulted in deeper and uneven cuts.

Another feature to consider regarding belt sanders is the ability to flush-sand right up against the edge of an obstruction. Flush-sanding reduces the chore of hand-sanding against corners.

Also, look for an easy-to-change belt system. Ideally you'll get a nice balance between easy changing and consistent belt

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tracking. For example, the professional-grade 4-by-24-inch Milwaukee proved to be a solidly built and highly aggressive sander. However, the Milwaukee's belt-change lever was very difficult to open. The "up" side is that the Milwaukee's belt stayed in line during cutting. On the other end of the spectrum, Skil offers the consumer-grade 3-by-18 model 7500, and the belt is super-simple to change thanks to an easy side lever. However, during our test the Skil belt moved a little too easily, and too much side-to-side motion caused the belt to track off the platen and wheels. You'll have to weigh such an annoyance against the tool's price and anticipated usage. For example, the Skil may not track as well as the professional-grade tools, but it also costs roughly 1/4 or less the price of the larger construction-grade models. I wouldn't put up with that wayward belt action on a daily basis, but if you only occasionally use the sander then that's another story.

*Skil offers the new 3x18 7500 belt sander for do-it-yourselfers.*

## RANDOM ORBITAL

After you've knocked down the old surface with your belt sander, it's time to move along to the finishing stages. Random orbital sanders use sanding discs with an oscillating action to remove material with less aggression than belt sanders but more than straight-line sanders. Random-orbits are a great intermediate sander for removing any belt-sander marks and preparing the surface for finish. Use these sanders with progressively finer grits of abrasiveness. The abrasive discs may be held to the sander by adhesive or with hook-and-loop. Choose from sanders with either a palm-grip or pistol-style handle, whichever you find more comfortable.

Some orbital sanders feature variable sanding motion. For example, over the past two or three years our staff has relied largely on Festool's 6-inch Rotex RO150 multipurpose sander. It features a dual-action switch—random orbital for fine sanding, and gear-driven rotary orbital motion for rough material removal. Just turn a knob to switch between modes, adjusting the lateral action of the pad. This lets the RO150 handle all phases of a sanding job, from rough material removal to sanding a smooth, paint-ready finish. It's a tool for the serious woodworker, and it hooks up to Festool's mini dust-extraction vacuums for nearly dustless sanding. Plus, the dust extractor doubles as a powerful shop vac for tidying the work area.

*Variable-speed gives the user greater control of the sanding, as shown with the new Hitachi SB8V2 being used to round off some step edges.*

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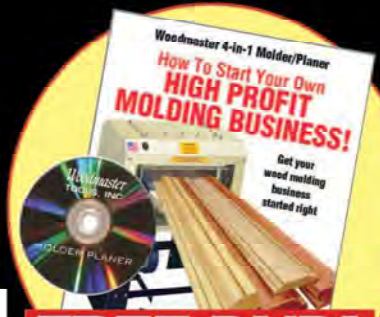


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*Look for a sander that both tracks well and has an easy belt-change device.*

*Shown is Milwaukee's Model 5936, solidly representing the larger end of the belt sander category.*

Festool and Metabo both make a nice 6-incher, and I've used them extensively with no problems at all. However, my only gripe about those two sanders lies with the availability of the sanding discs. You might find that 6-inch hook-and-loop discs can be hard to come by. Five-inch sanders are the most popular size sanders, especially for homeowners. You can pop into any home-improvement store and procure some 5-inch discs, whereas I have to order my 6-inchers online.

Bosch offers two new 5-inch random orbits, the 2.2-amp ROS20VS and the ROS10. The newly optimized combination of pad orbit and rotation delivers a well-blended, ultra-smooth finish. Bosch's integral pad dampening system is designed to reduce the most common complaint of random orbit sander users—swirl marks on the workpiece. The pliable microcellular backing pad ensures a smooth finish on either flat or contoured surfaces. I also like the Bosch sanders' carrying case, which includes a disc holder with plastic nodes that protrude through the disc's dust-extraction holes. It's a simple feature, but it makes it easy to line up the sanding disc with the holes on the sander.

*Random orbital sanders use sanding discs with an oscillating action to remove material in preparation of finishing.*

Craftsman's new 2.7-amp Professional Vibrafree 5-inch random orbit sander comes with a vibration-reduction system. I wouldn't go so far as to call it "vibration free," but we tested this unit side by side with a couple of competitor models, and its reduction in shake and shimmy was undeniable. Vibration isn't usually the first thing on the user's mind when firing up a sander, but it becomes increasingly aggravating and adds to fatigue, the more the tool is used.

## FINISH SANDING

Finishing sanders usually operate with a straight-line or vibrating action. They may be large half-sheet sanders, or the smaller quarter-sheet sanders. Typical finish sanders have the ability to accept virtually any type of sandpaper, just cut to size if necessary and clamp on the abrasive sheet. Some smaller "palm" finish

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sanders feature dust-extraction holes and require hook-and-loop sanding pads. Many sanders are square, while others feature a pointed nose for accessing tight corners and hard-to-reach areas.

For intricate woodworking you should also check store shelves for an interesting selection of specialty sanders. For example, Sears/Craftsman's variable-speed 3D Sander operates similarly to an electric shaver; three separate 1-1/2-inch sanding discs move and pivot independently to conform to both convex and concave surfaces.

Another is Skil's new Octo sander, because you can fit this little gadget with eight different sanding profiles, allowing you to access tight corners, flat faces and numerous shapes and profiles. This comes in handy when

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*The new Bosch 5-inch random orbital sanders feature a newly optimized combination of pad orbit and rotation to deliver an ultra-smooth finish.*

*Craftsman's new 2.7-amp Professional 5-inch random orbit sander includes an innovative vibration-reduction system.*

*Finish sanders are available in several varieties, some featuring a pointed nose for sanding tight corners.*

trying to smooth out various corners and rounded profiles.

Although Finishing sanders do a good job of removing the tiny swirl marks left by random orbital sanders, I always prefer to finish off with a good hand-sanding with a very fine abrasive (180- to 220-grit). Use the sandpaper on a rubber or other soft-backed sander, sanding in the direction of the grain. Hand sanding simply affords you better control of the finishing touches. Once sanded, clean away any dust with a tack cloth or vacuum before applying a finish.

## STATIONARY SANDERS

Serious woodworkers should consider stationary or "bench" sanders. This tool group of sanders consists of disc, belt and drum sanders, with disc and belt sanders often combined into one tool. Stationary models are ideal for furniture and cabinetry construction.

They can be used to shape and smooth convex or concave surfaces like butcher-block countertop edges, cabriole legs, scroll work and other contoured items.

For example, the new Model 50-120 from Rikon is a 6-by-48-inch belt sander with a 10-inch disc sander. It includes a tilting cast iron work table, a miter gauge, quick-release belt tension, as well as a belt that tilts 90 degrees for all sorts of sanding angles.

Another new bench model from Craftsman is the Oscillating Spindle Sander that makes the job of sanding curves and contours easier and less time consuming. It's a great little tool for sanding contours, arcs, curves and other irregular shapes faster than traditional hand sanding. The 18-inch diameter cast iron work


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table supports heavy, large work pieces. With 1/4-horsepower direct drive induction motor, the spindle rotates at 1,725 RPM with a stroke length of 1-in. (30 strokes per minute) to prevent chatter and burn marks on the wood.

## DUST COLLECTION

Some sort of dust-collection device, be it a cartridge or cloth bag, is usually a standard feature on today's sanders. Comparing one to another, you may consider one brand's system to perform somewhat better than another brand—but I'm on the fence. From my experience, none of the on-tool dust collectors do a really great job. You should always expect some fallout as well as the ensuing cleanup job.

*Skil's Octo finish sander features eight different attachments for sanding various shapes and profiles.*

*Hand sanding is the last step to smooth the wood before applying a wood finish.*

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However, if you spend a lot of time sanding or handling working indoors, you're best bet is to invest in a dedicated vacuum dust-collection system that attaches to your sander's dust port via a vacuum hose. This of course means your sander should come equipped with a dust port. The vacuum-based dust-collection systems are the closest thing you'll find to a dust-free sanding operation.

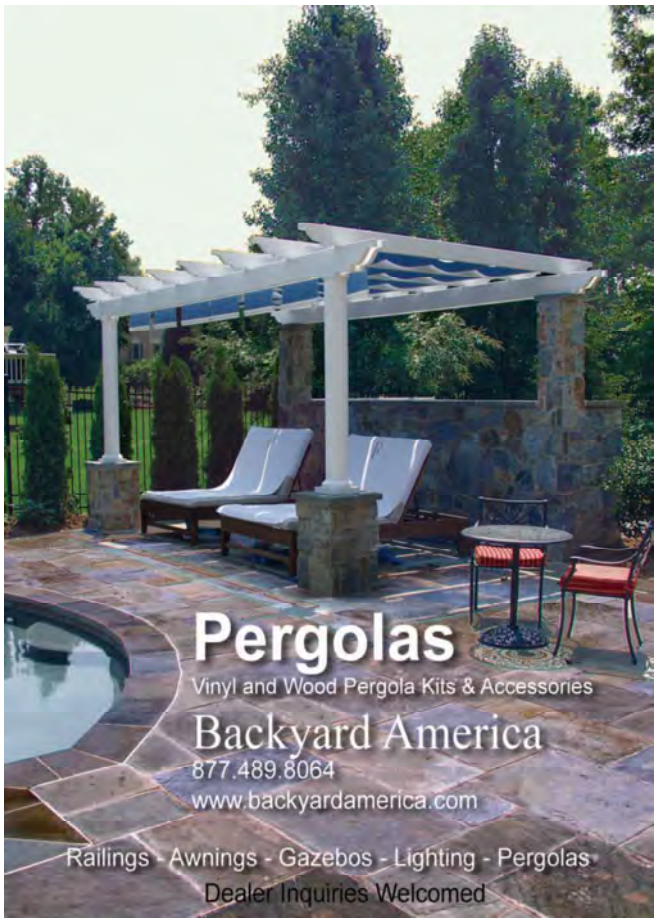
And there are tons of dust-collection devices, from small portable models to larger, stationary models. But that's a story for another Tool School. **EHT**

*Craftsman's new Oscillating Spindle Sander makes the job of sanding curves and contours easier and less time consuming.*

*Rikon's Model 50-120 is a stationary 6-by-48-inch belt sander with a 10-inch disc sander, and the belt tilts 90 degrees.*

## QUICK WOOD REPAIR TIP

**Because some woods such as pine are so easy to scratch, it's best to avoid belt sanders or any sander set to high speed, because they can get away from you and damage the wood. In the event that you dent or scratch the wood, you can dampen and heat the area to raise the wood grain to make a repair. To do this, use a very small brush to apply a small amount of water to the scratch or dent. Then use a hot laundry iron covered with a soft cloth to heat the area, raising the wood grain. Then sand as usual.**



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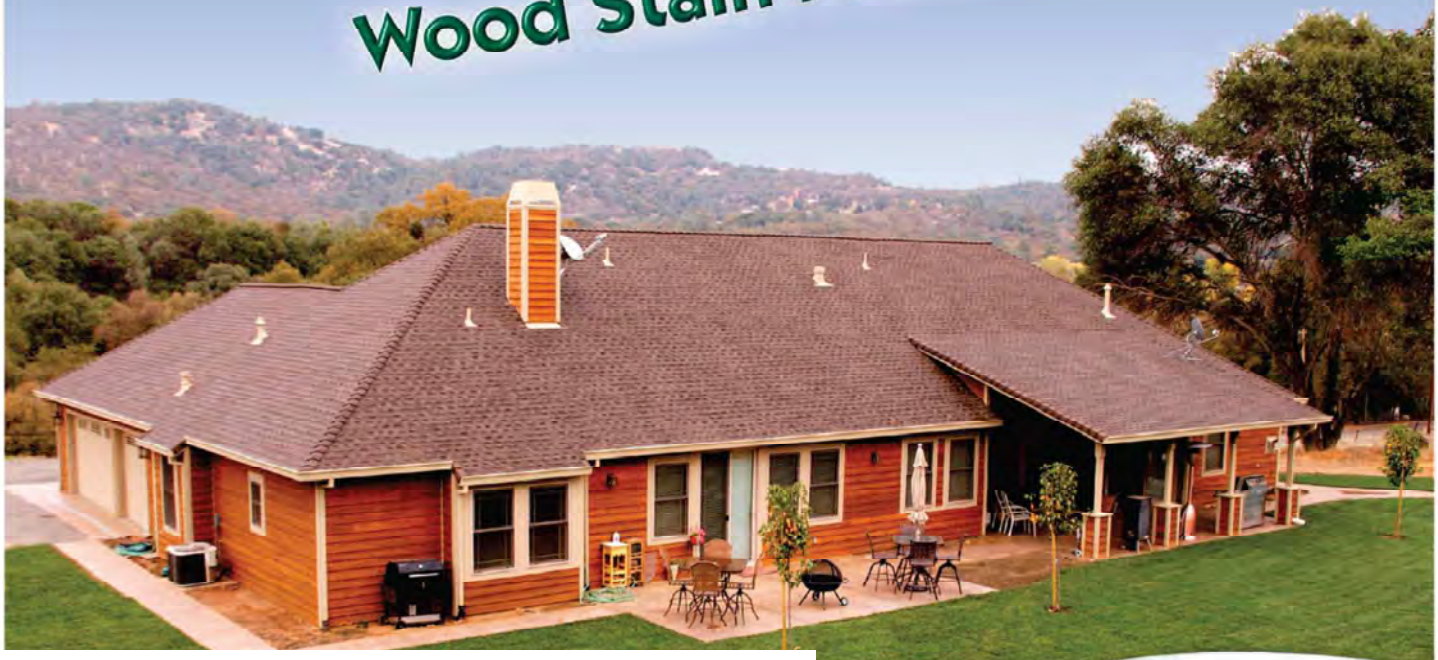

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# DECK RECOVE

## Replacing Worn-out Wood with Low-Maintenance Composites

# RY >>

Photo courtesy Trex Industries

**By Matt Weber**

Decks take a lot of abuse. Due to their very nature, we expect them to withstand brutal attacks from direct sunlight and driving rainwater. And, if not properly preserved and maintained, a wood deck will eventually require a major facelift, as shown in this article.

The sundeck we remodeled for this issue of *EHT* had certainly seen better days, before the wood succumbed to the perils of direct ultraviolet rays. The deck had been slapped with a clear coat of water preservative, but that was the extent of protection. And being situated on the second-story of a townhouse, there were no trees to shade it from that enormous nuclear cannon in the sky that we call the sun. The 2-by decking boards were no match for the power of Mother Nature, and the lumber had checked, warped and grayed. The deck floor was no longer in the same plane, nails were popping like a pan of Orville Redenbacher, and the cap rail had bowed into the shape of a miniature ski slope. It was time to get out with the old deck boards and in with the new—the "new" being low-maintenance composite decking.

# DECK RECOVERY >>>

## EXTRA SUPPORT

The owner of the deck selected Timbertech's Earthwood brand of composite decking in a "Tropical Teak" color. According to the manufacturer's instructions, the Timbertech boards required the deck joists to span a maximum of 18 inches, but the deck currently existed with joists on 24-inch centers. This meant I had to nail additional 2-by-8's between the existing joists.

A reliable framing nailer and a sturdy, adjustable ladder came in very handy for this chore, because the framing was roughly 10 feet overhead. The deck was also 10 feet deep. I was working alone on this deck remodel, and that meant balancing the 10-foot joists from atop the ladder, holding them in position and using one hand to toe-nail the ends into the ledger boards. If you're working under similar conditions, then you'll find it helpful to secure a bucket to the ladder for holding the nailer. And, I'd suggest wearing a toolbelt that includes a back brace, because this balancing act can do a number on your lower lumbar region.

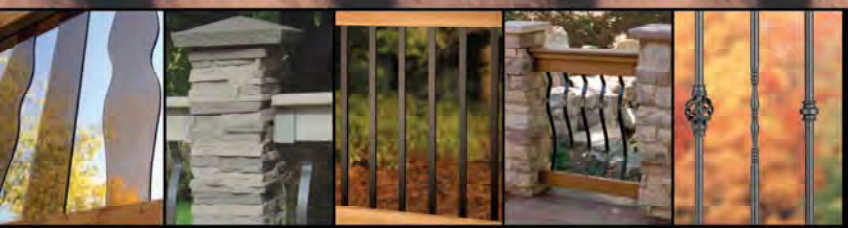
Here are a couple of tips on the joists: First, I removed the 2-by-2 support strip that ran flush beneath the house side of the joists. However, I left the support blocking in place on the other end of the joists. This allowed me to hook one end of the new joists over the edge of the blocking, which supported a lot of weight while positioning the joists' other ends.

I also had some difficulty positioning the tops of a few joists flush with the existing deck boards, and I needed to make sure the replacement boards

*Due to the power of Mother Nature, the deck boards have checked and warped.*

What inspires you

to build outside?



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would be going down on framing that's all in the same plane. My solution was to use a T-Jak, which is a type of cabinet jack (or drywall tool … or decking tool, evidently). However, the T-Jak didn't reach from the concrete carport to the second-story joists above. Since I was working on a Little Giant ladder configured as an A-frame, I bridged a scrap 2-by-8 board across the rungs to serve as support for the bottom of the jack. This worked well; it gave the T-Jak the reach it needed, and I could crank on its adjustment job until the jack pushed the joist in place. Before nailing it, I made the final adjustments to plumb the joist with a special pry bar called the Tweaker from Mahew Tools, which clutches the 2-by in a hardened steel grip so you can bend it in position.

*Skil's Mag 7 worm-drive circular saw made quick work of cutting the 2x8 joists.*

Once all the new joists were in position, I reinstalled new 2-by-2 support blocking beneath all the joist ends. Then I re-nailed the long diagonal support brace that bridged the bottom of all the joists.

## DE-DECKING

Ordinarily I would take a beefy pry bar and tear through all the deck boards like a wolf in a hen house, being that tearing stuff

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down can be a lot more exhilarating than building it up. However, I was working 10 feet from the ground, and decided to take it easy, alternatively tearing up and replacing the decking as I worked my way across to leave myself some sturdy flooring on which to work.

I started demolition at the far corner of the deck by plunge-cutting the end plank with a reciprocating saw. Once the board was cross-cut it pulled up easily with a pry bar, and that got things going. I could then use my favorite deck-destroying tool, the Gutster, to pry up the boards from the joists. The Gutster is a monster of a pry bar—at 48 inches long, it has all-steel construction but weighs less than 10 pounds. The

*A pneumatic framing nailer is a great help when fastening the joists.*

*A cabinet jack called a T-Jak proved very handy when aligning the tops of the joists.*

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Gutster gives you great reach, great leverage, and its huge demolition head has enough bite to tear up all the heavy framing you can throw at it.

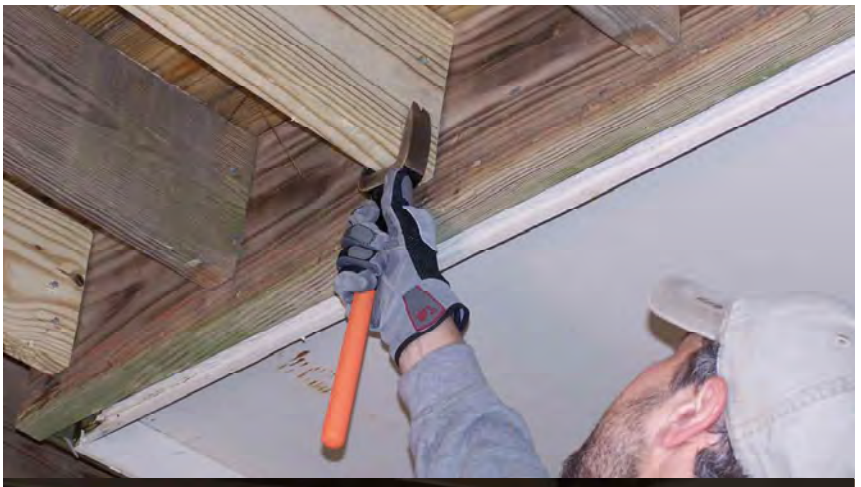
And although the Gutster has built-in nail-pullers, much to my dismay the previous deck builder had used headless, smooth-shank nails—hundreds of which failed to pull up with the deck boards. This meant I was stuck pulling nails with pliers—one at a time, up close and personal.

## RE-DECKING

Once all the old deck boards were out of the way, I had the green light for the composites. The first new board went down beneath the hand rail and flush with the outside edge of the deck. I used a drill/driver to fasten it down with composite decking screws in pilot holes, driven no closer than 1 inch from the edge of the deck board. When

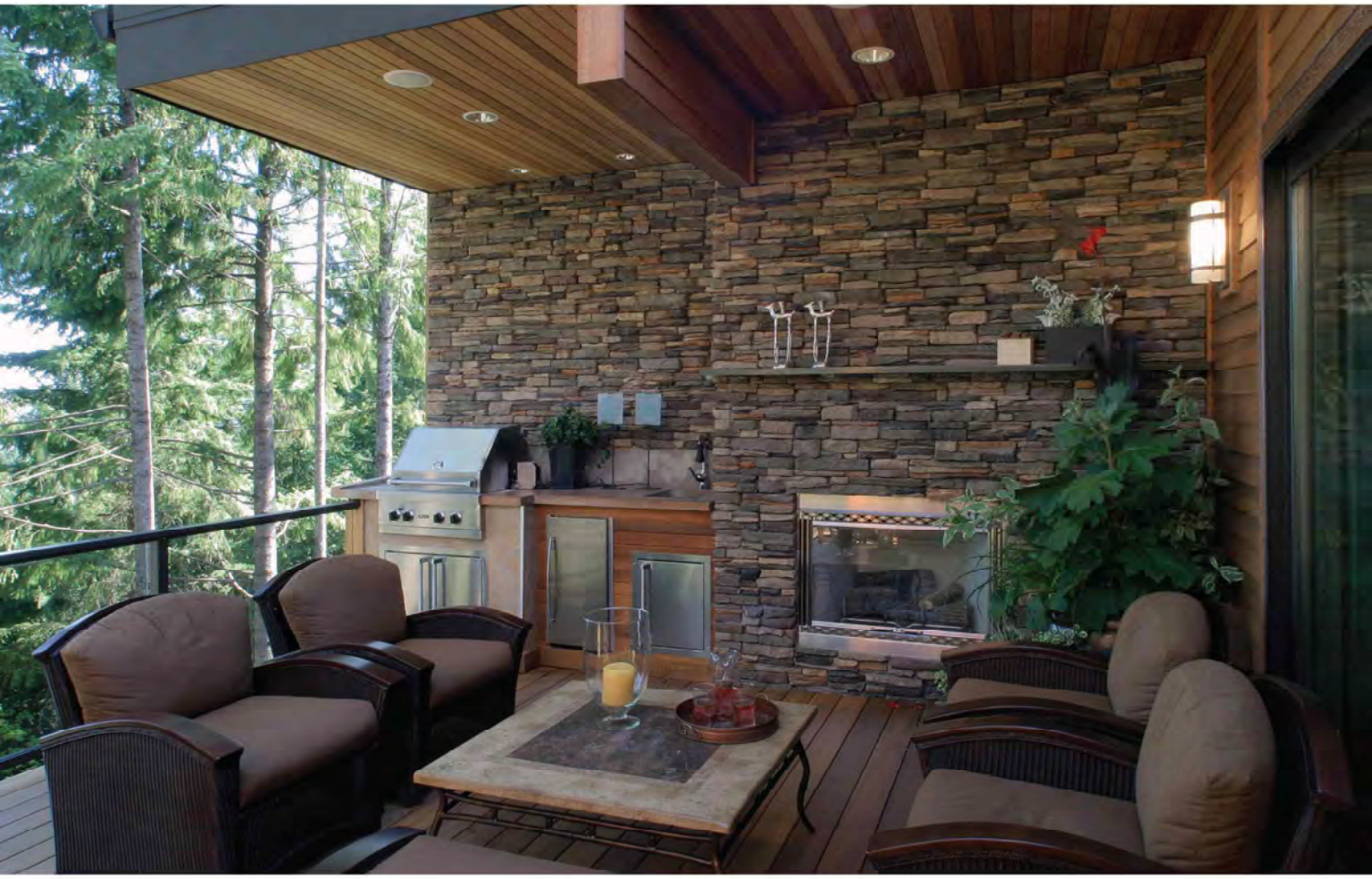
*To begin demolition of the decking, I cross-cut the first board with a recip saw.*

*Once it was cut, the board pulled up easily with a small pry bar.*



*A special pry bar called the Tweaker makes it easy to hold the joists in position when fastening.*

*Each side of the Little Giant Ladder can be independently adjusted for length, so it can bridge uneven footing and obstructions like the curb and HVAC unit shown here.*



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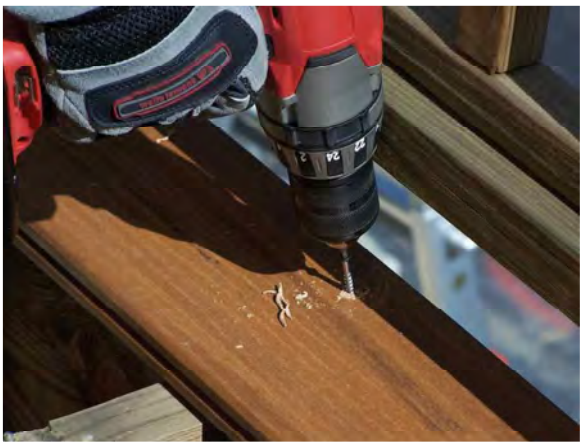
pre-drilling composite boards, you'll notice that some shavings of composite material will probably pull out of the hole. I used those composite shavings to cover the countersunk heads of the deck screws—softly tap in the shavings with a hammer; it works like a wood plug.

The rest of the boards required no pre-drilling. Instead, each deck board has a 3/16-inch channel along both edges in which to install hidden metal fasteners. Timbertech's ConcealLoc fastener system uses two-sided metal hangers that operate similarly to wood biscuits. However, instead of using glue, a decking screw is driven through the center of the metal hanger at a 45-degree angle and into the joist. The screw applies pressure to the hanger to tighten the board against the joist. Move to the next joist and repeat along the length of the deck board. The opposite sides of the fasteners will insert into the groove of the following board. Just line up the next board, slide its groove against the hangers, and tap the



*The first new composite board was installed flush with the outside edge of the deck. The first board was fastened to the framing with square-drive composite decking screws.*

## KEY ADVANTAGES OF COMPOSITE DECKING

**There are a few key advantages of composite decking versus pressure-treated wood decking, but none more important than low maintenance. Low maintenance is a big reason many consumers choose composite decking over wood decking. With composite decking, homeowners don't need to worry about splinters, staining and annual upkeep. Maintaining a composite deck is simple—just wash the deck with a mild detergent once or twice a year or as needed, and that's it.**

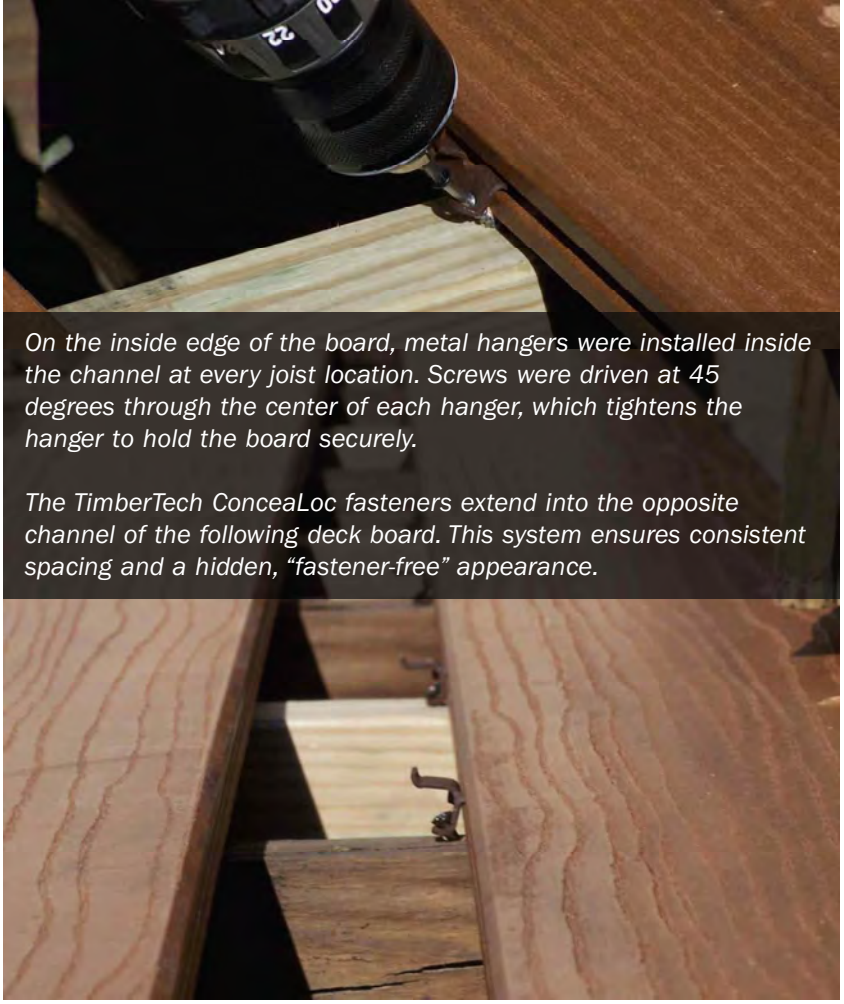
**One major reason composite decking is low maintenance is that it does not take in or give off moisture, therefore it does not shrink or swell like wood. As a result, composites do not crack, warp or separate due to varying weather cycles. Composite decking resists insects, does not need water repellant or stain and can hold up to extreme weather conditions for decades. In addition, builders like to use composite decking because it cuts and installs like real wood.**

**Many composite decking products, like the Latitudes brand, offer matching decking and railing colors that complement a home's exterior siding. Latitudes also offers a reversible, woodgrain/brushed finish, which is slip-resistant. Also becoming increasingly popular is composite decking with a pre-grooved/slotted plank that helps showcase a fastener-free appearance.**

**—Chris Fox**
**Marketing Manager**
**Universal Forest Products**

board until the joint closes in a tongue-and-groove fashion—I used a hammer and scrap deck board to do this. (It may help to tilt the boards so the groove easily slips over the hangers. However, my boards were each 18 feet long to avoid end joints and were too flexible for me to tilt by myself.)

Basically, I just repeated the installation pattern from one end of the deck to the other; install a new deck board, fasten all the hangers in place, install a new deck board, etc. Once I got on a roll, I made some serious progress. (And here's a tip on keeping up that progress: Invest in some quality knee pads.) When I got to the house-side of the deck, I had to rip some boards to width, including having to notch



*On the inside edge of the board, metal hangers were installed inside the channel at every joist location. Screws were driven at 45 degrees through the center of each hanger, which tightens the hanger to hold the board securely.*

*The TimberTech ConceaLoc fasteners extend into the opposite channel of the following deck board. This system ensures consistent spacing and a hidden, "fastener-free" appearance.*

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one board with a jigsaw to fit around a chimney.

Overall, the Timbertech fasteners proved to be a fairly easy and straightforward method for deck installation. And when the joints closed with no more than about 1/8 inch from board to board, the deck really did achieve a completely "nail-free" appearance with a clean, classy look.

## EXTRA, EXTRA

Naturally, I ran into a couple of unexpected snags on this project. First, there was no flashing against the house. As a result, there was already evidence of wood rot at the deck intersection. So, I bent some aluminum flashing on a sheet-metal break and installed a channel beneath the siding along the top of the ledger board, to minimize further water damage. You won't see photos of this step because I bent the flashing off site, and I was frustrated with the extra work so I didn't fool with the camera. Sue me.

Another hang-up came with the discrepancy between the thickness of the deck boards. The old lumber decking was 1-1/2 inches thick. The new composites were only 1 inch thick. When I installed the new boards, they revealed 1/2 inch of unpainted siding along the bottom of the three walls surrounding the deck. To hide this I needed to add trim, and settled on a kind of makeshift base moulding for the deck. Here, I should interject that the homeowner decided to keep the existing wood handrail system (except the cap rail), with the intention to stain the wood to match the color of the deck. To

*A heavy-duty demolition bar called the Gutster made an easy chore of ripping up the old decking.*

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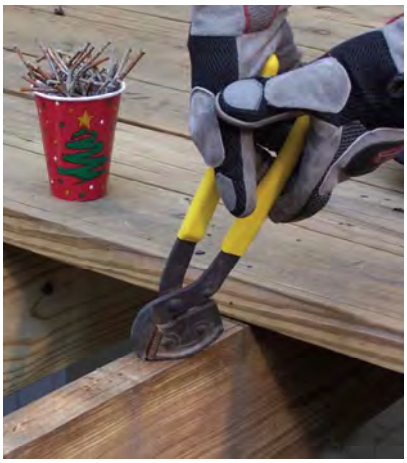

*A lot of nails were left in the framing, which were duly pulled out and collected in a disposable Christmas tree cup.*

*It may help to use a hammer and a scrap of decking to tap the boards together when closing the joints.*

*On the "house" side of the deck, a few boards had to be ripped to width, and one board had to be notched to fit around a chimney.*

match the base trim to the railing, I ripped some 2-by-2 trim pieces from 2-by-4's on my table saw, which would also be stained. I then ripped a bevel along one edge to ease the profile a bit. I used a miter saw to cut them to length and to cut all the 45-degree corners. Granted, base trim for interior applications isn't typically this bulky, but this was a deck, and I was trying to keep the wood thick and strong to resist warping from exposure. I was also relying on the protection of a high-quality wood preservative.

For the wood coating, the homeowner selected a semi-transparent Sierra Redwood stain from Armstrong-Clark. The *EHT* staff has used Armstrong-Clark's oil-based preservatives in the past, and they hold up well against water and UV-rays. The wood stain complemented the new composites very nicely, and I predrilled the base trim

and screwed it in place along the edges of the walls. We then added a Timbertech fascia board to the outside edge of the deck and stained the handrail.

The finished project was a dramatic upgrade to the old, weathered lumber of the previously damaged deck. The new deck surface boasted a fresh, warm color and an uninterrupted, blemish-free surface thanks to the hidden fastener system. And just in time for summer. **EHT**

## TOOLS & MATERIALS

**Armstrong-Clark, www.armclark.com**

**Bosch Power Tools, www.boschtools.com**

**Little Giant Ladder, www.littlegiantladder.com**

**Mayhew Tools, www.mayhew.com**

**Skil Power Tools, www.skiltools.com**

**The Gutster, www.thegutster.com**

**TimberTech, www.timbertech.com**

*The homeowner chose to keep the wood handrail system and stain it to complement the new composite decking. However, the cap rail was in very bad shape, so it was replaced with composite.*

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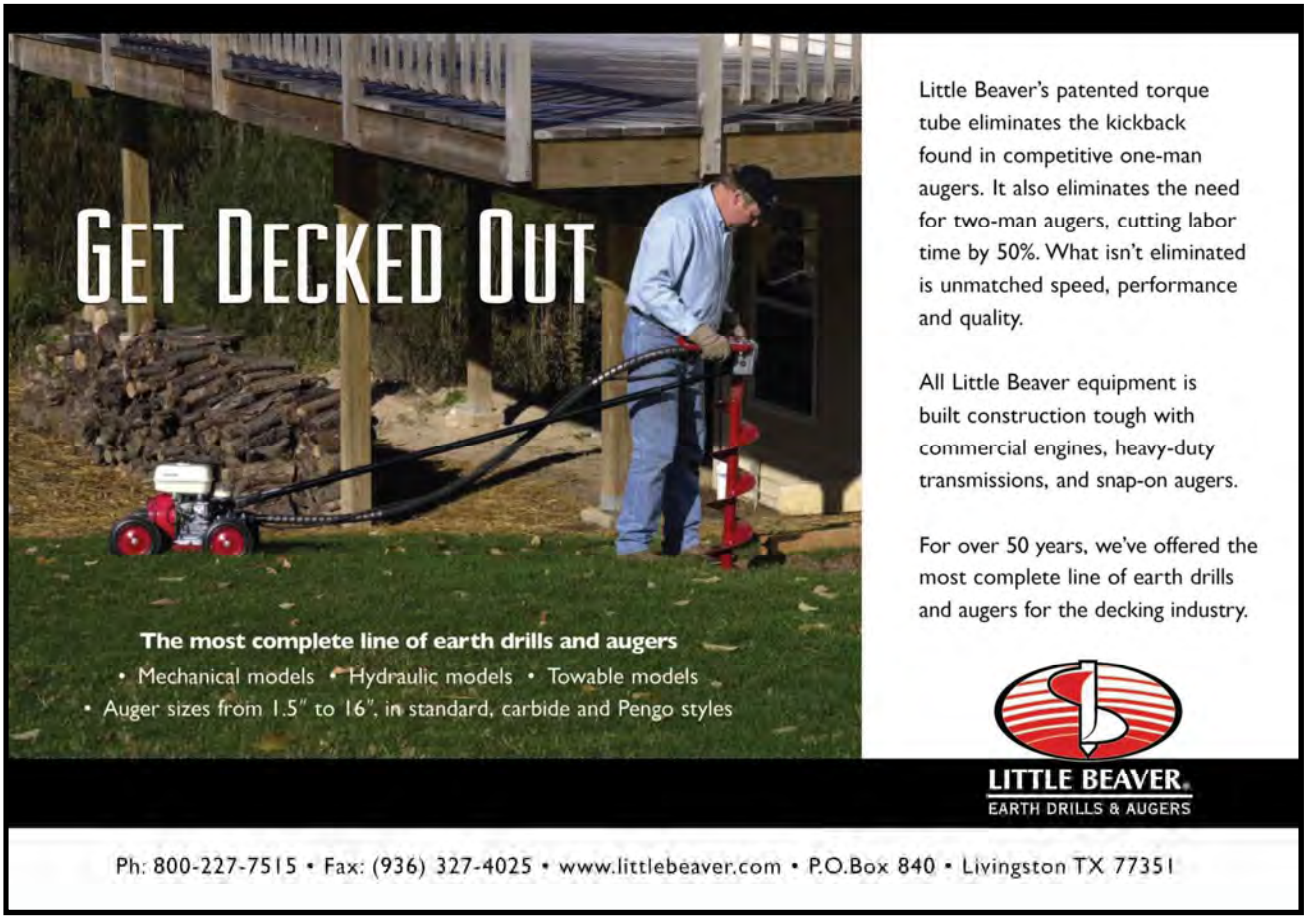
*The base moulding of the deck was created by ripping a beveled profile along one side of a 2x2. The trim pieces were then stained with Armstrong-Clark's semi-transparent Sierra Redwood stain.*

*The trim was mitered as necessary and fastened along the edge of the deck with decking screws in countersunk pilot holes.*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# UNDERSTANDING HOUSE FRAMING

**By Monte Burch**

When viewing a framed house before the wall coverings are installed, the building often seems complicated and to some, a daunting project. House framing actually consists of several separate "projects" assembled into one to create the finished home. Taken in that context, house or building framing is not all that difficult. With today's advances in air tools, such as framing nailers, you don't even have to be an experienced hammer swinger to frame a house. It is a good idea, however, for the inexperienced to begin with a small, simple construction, rather than a two story, complex design. A garage or garden shed is a good example. In most instances you will be constructing from building plans, and that's definitely the easiest for the inexperienced. Make sure you follow all specs and elevation drawings.

The most common framing material is wood, but metal framing is becoming more popular. Metal may be desired in some areas and may be a code regulation in other areas as well. Regardless of the type of construction, make sure you check with local building authorities as to regulations pertaining to construction and framing, as well as to obtain any needed permits.

## METHODS

Two methods are used in standard wood house or "stick" framing—balloon or platform—and both

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UNDERSTANDING

# HOUSE FRAMING

have advantages and disadvantages. Balloon framing is sometimes used with two-story buildings. In balloon framing the studs extend as one, from the sill to the top plate of the second story. The second story floor joists are supported by a ribbon

board set into the studs. This type of construction is the most difficult, but does provide unobstructed openings between the floors allowing for easy installation of utilities without notching and cutting openings. Fire stops must, however, be installed at the second story floor level between the studs.

Platform framing can be used for either single or two-story and is the easier and most common method of construction. Fire stops are automatically created with this type of construction. Constructing a single-story is the easiest, a two-story or split level is harder. Platform framing is easier than balloon framing because you can construct and erect the second story walls on the second story floors.

Either construction can be done on a concrete slab or on a foundation. The slab acts as a floor; a foundation requires a floor to first be constructed. Then the walls are framed on the floor (or slab) and raised in place.

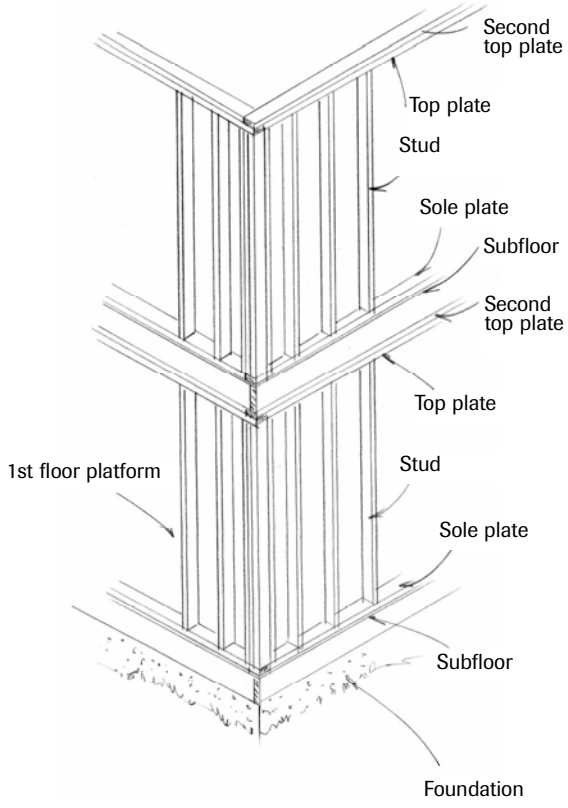
## FROM THE FLOOR UP

If constructing on a foundation, the first step is to construct a floor on the foundation. Sill plates are anchored to the foundation, then the floor joists are fastened to the sill plates and their ends boxed in with joist headers. The headers and outside joists should fit flush with

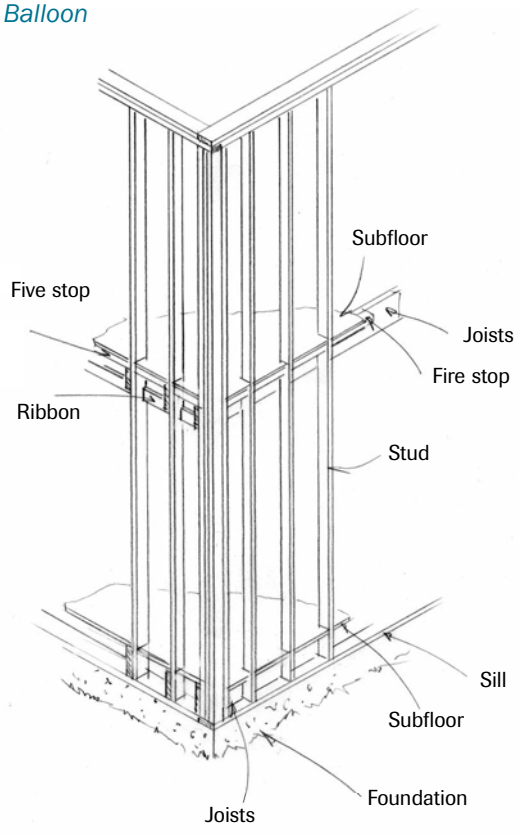
*A building is basically framed in sections and the sections joined together.*

*Two types of construction are used, balloon and platform, with platform being the most common.*

*2-Story Platform*




*Balloon*



the outside edges of the foundation. Metal hangers make installing the joists easier than toe-nailing them in place.

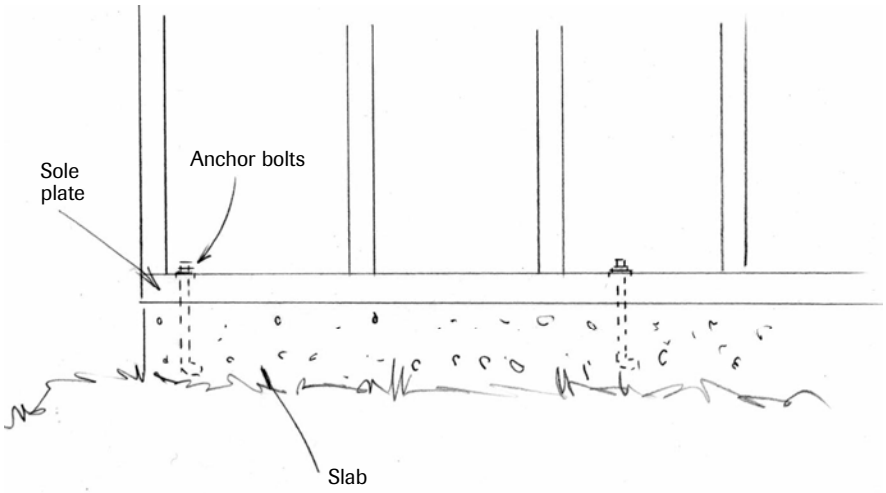
In many instances of larger buildings, or those with joist spans over 16 feet, a girder is installed to provide support for the floor at these locations. Today's girders are commonly made of engineered wood. The girder should be supported by piers or foundation and footings. With the floor framed in, decking, or a subfloor, is added. Decking is typically oriented-strand board (OSB), or 3/4-inch plywood sheathing. In the past solid wood 1-by boards were applied on the diagonal.

## WALL CONSTRUCTION

After the deck or floor has been constructed, you're ready to construct and erect the walls. The walls consist of sole plates

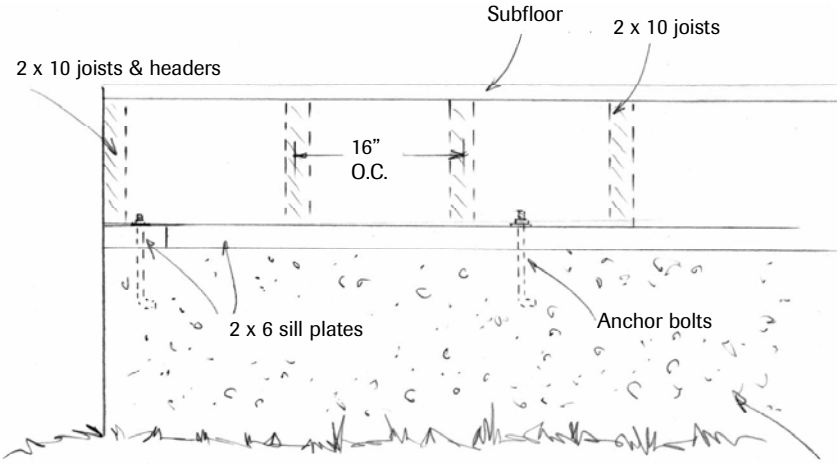
*First step is to lay the sole plate for slab construction, or sill plate for a foundation/floor, against the anchor bolts, mark their location and bore the holes.*

*The walls are then constructed on the slab or subfloor.*




*Wall construction on a concrete slab is anchored to the slab with anchor bolts through the wall sole plate.*

*The most common construction is on a foundation. In this case the floor is first framed, anchored to the foundation, and covered with a subfloor.*



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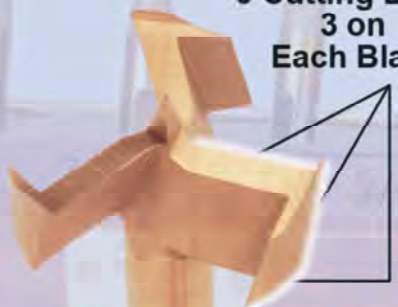

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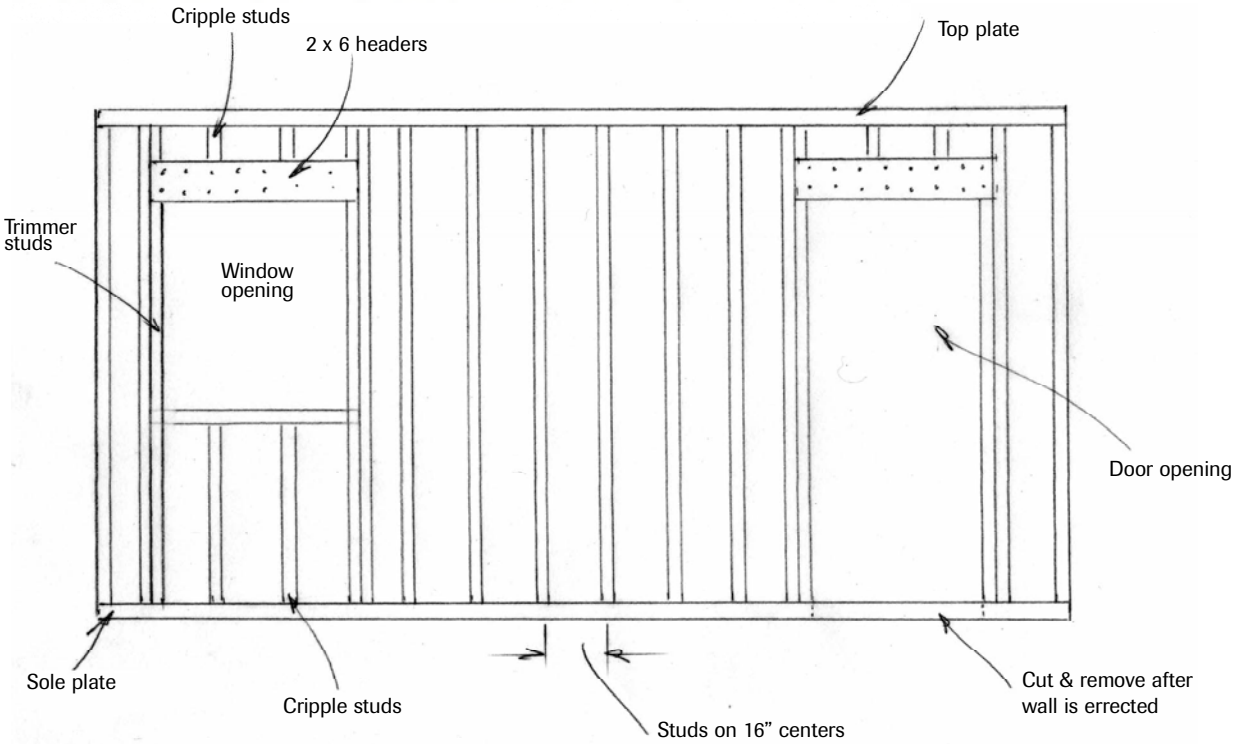
UNDERSTANDING

# HOUSE FRAMING




*Walls are actually constructed as one individual piece, or as sections in the case of long walls. Shown is a typical wall with a door and window opening framed in.*

nailed to the subflooring, or anchored with anchor bolts to the concrete slab. Studs are nailed to the sole plates and top plates are nailed to the studs.

Actually, the walls are assembled in one piece, or in the case of long walls, in sections joined together to create the length needed. If building on a slab, the first step is to lay the sole plate on the slab and mark the locations of the anchor bolts. Bore these holes. Regardless of whether you are building on a slab or foundation, the next step is to lay the sole plate and top plate side by side, and determine any door and window locations, as per the plans or your building design. You must know the rough-opening sizes of any doors and windows. Using a carpenter's square, mark these rough opening locations on both. The tongue of the square is 1-1/2-inches

*Lay out the door and window openings on both the sole and top plate, as well as stud locations, at the same time, using a tape measure and carpenter's square.*

*A lay-out stick was often used by the old-timers to lay out stud locations.*

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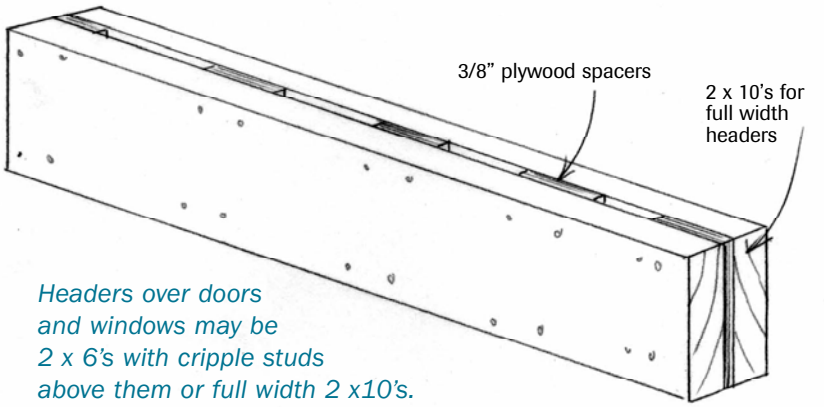



*Headers over doors and windows may be 2 x 6's with cripple studs above them or full width 2 x10's. Regardless, 3/8-inch plywood spacers are used to create a header width to match the stud width.*

*Bracing of some sort is commonly used. The type and amount depends on code rules and building design. One method is to inlet 1 x 4 wind or hurricane bracing into the studs. Measure from corner to corner of the constructed wall, then measure opposite corners and make sure the wall is square.*

*Lay the bracing in place and mark on the wall studs. Then saw each side of the cut-out.*

*Complete the cut-out with a chisel.*

wide, the exact width of kiln-dried 2-by framing materials. Then mark the stud locations, again on both sole and top plate at the same time. This measurement may be on 16- or 24-inch centers, depending on building design or local codes.

Once all measurements have been marked on both sole and top plate, lay them on edge on the subfloor or concrete slab, the proper distance apart of the stud lengths. If you use precut studs you can save money and time. Fasten the studs between the plates, positioning their ends in the previously marked locations.

Once the studs are in place, frame in the door and window openings, and then add the headers. Headers may be constructed full width by using 2-by-10's, or they may be created by using 2-by-6's filling in above them with cripple studs. Traditional headers are created by nailing 3/8-inch plywood spacers between the header boards to create the same thickness in the header as the 3-1/2-inch width of the studs. The headers are supported by trimmer studs to create doubled studs in the openings. Cripple studs are fastened between the trimmers beneath the door and window openings, and spaced to match the other studs on the same 16- or 24-inch centers.

A framing air nailer can save time if you have power to the site. If there is no power you can use a cordless model such as the Paslode. Several years ago my daughter helped frame a building and she had never "swung a hammer." Using an air framing nailer, she had no problems, and we completed the building in a short time.

## SQUARING THE FRAME

In some instances walls are constructed without additional bracing, using plywood or OSB sheathing at the corners to brace and square the wall section. And in some cases the sheathing is applied to the wall frame before erecting the wall. In either case the wall section is first squared by measuring diagonally from corner to corner, then from opposite corner to corner and shifting the wall section to create an equal measurement and a squared wall. A large wooden 90-degree triangle can also be used. A temporary brace is then installed to hold the wall square.

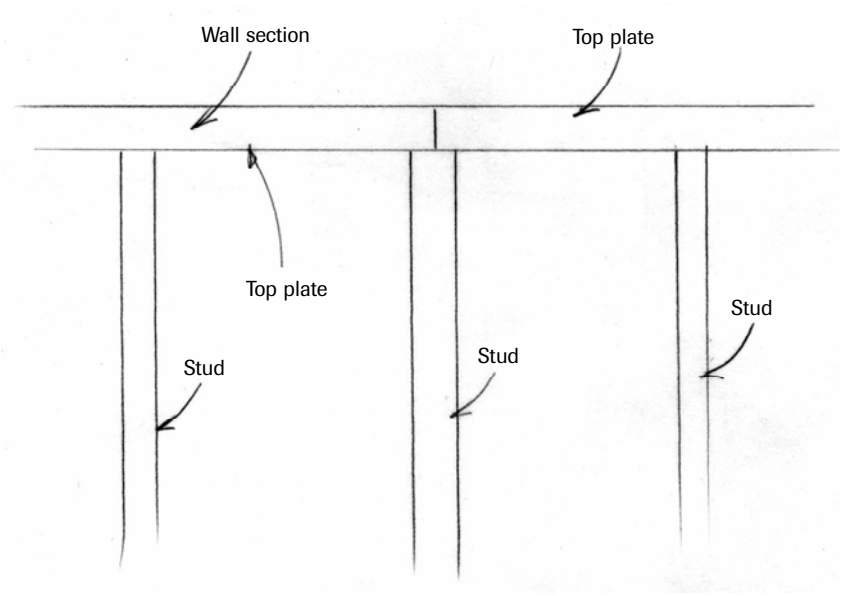
In many instances hurricane bracing is added to the walls. This consists of purchased metal strips or 1-by-4's set diagonally across the wall and cut into the outside edges of the 2-by-4's. With sole plate and top plate nailed into the studs, again use a tape measure to measure diagonally from corner to corner and square up the wall. Temporarily tack the hurricane bracing in place and mark the cut locations. Use a saw to cut the notches, and then remove material between the saw marks with a chisel. Anchor the bracing in place with two 8d nails at each stud, and then cut the ends of the bracing off flush with the plate edges. (Make sure you check with local codes on bracing regulations in your area.)

## RAISING THE WALLS

Erecting a wall is fairly easy, but even small walls are best erected by at least two people. Erecting on a subfloor is easier than on a slab. Simply slide the wall close to the edge at its location and tilt it up. I like to use temporary 2-by-4 stop blocks

*With the wall constructed, tilt it up in place. This takes two people on even a small wall.*

*Drive 2 x 4 stakes into the ground and brace the wall in place, making sure it is braced plumb. Construct the opposite side wall, erect and brace it in place.*




*If long walls are to be constructed in sections, make the joint on a stud.*

fastened to the outside edges of the joists and headers to keep the wall from sliding off as you lift it up. If installing the wall on a concrete slab, slide it up to the anchor bolts, then you will have to lift the wall up and position it down on the anchor bolts. Again, this is at least a two-person chore, even for a short wall.

With the wall up in position, drive 2-by-4 stakes in the ground and provide temporary supports anchored to the wall studs and stakes. Duplex nails used for constructing foundations are good for this step, as they can more easily be pulled later. Make sure the wall is plumb and correctly in position before anchoring the bracing. If placed on a slab, fasten the sole plate in place with washers and nuts

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over the sole plate and on the anchor bolts. If on a foundation/floor, nail the sole plate down on the subfloor and into the floor joists and headers. If the wall is to be built in sections, build the next section, erect it, brace in place and fasten to the previously erected wall. Note the wall joints are always on a stud.

Construct, erect and brace the opposite wall in place in the same manner. Then construct the wall that fits between the two standing walls. This wall is measured to fit between the previously erected walls, measuring at the bottom. Construct and erect the opposite-end wall in the same manner. On these walls, start with studs on each end, and then measure for the "on-center" studs, adding the 2-by-4 or 2-by-6 measurement of

*Construct the end walls to fit between the side walls, erect and brace them.*

*After making sure all corners are plumb, fasten the end wall end studs to the side-wall end studs.*


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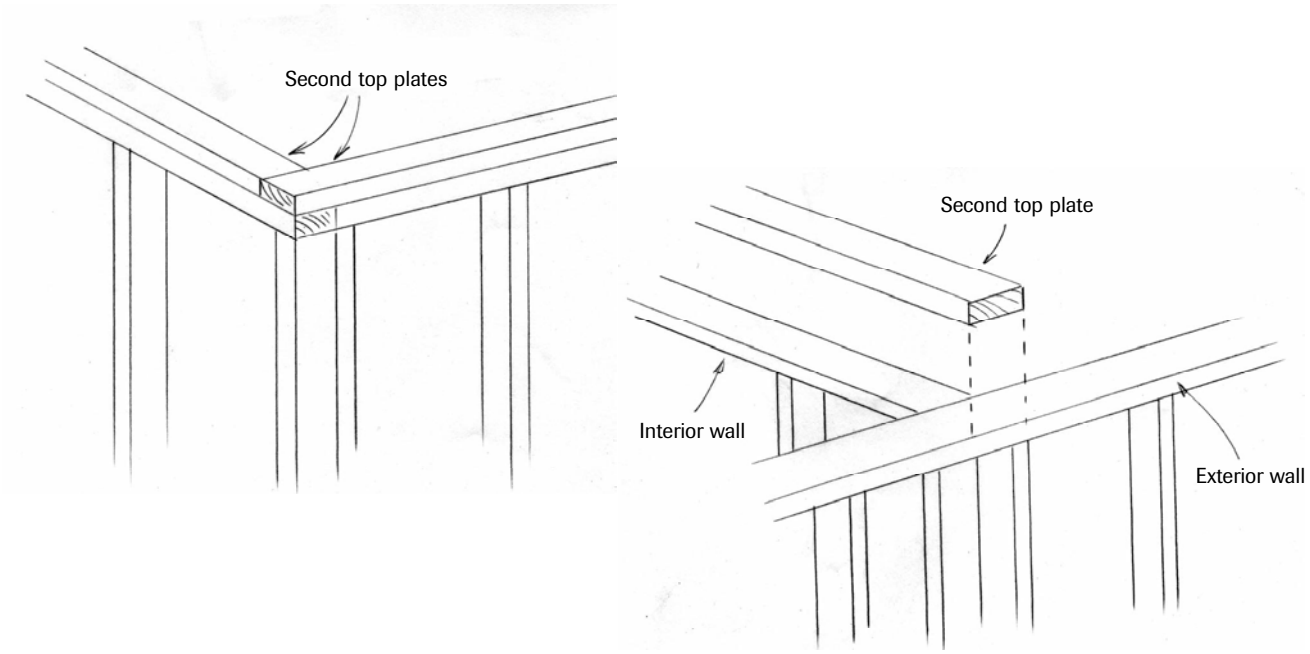
*Further anchor all joints with a second top plate.*

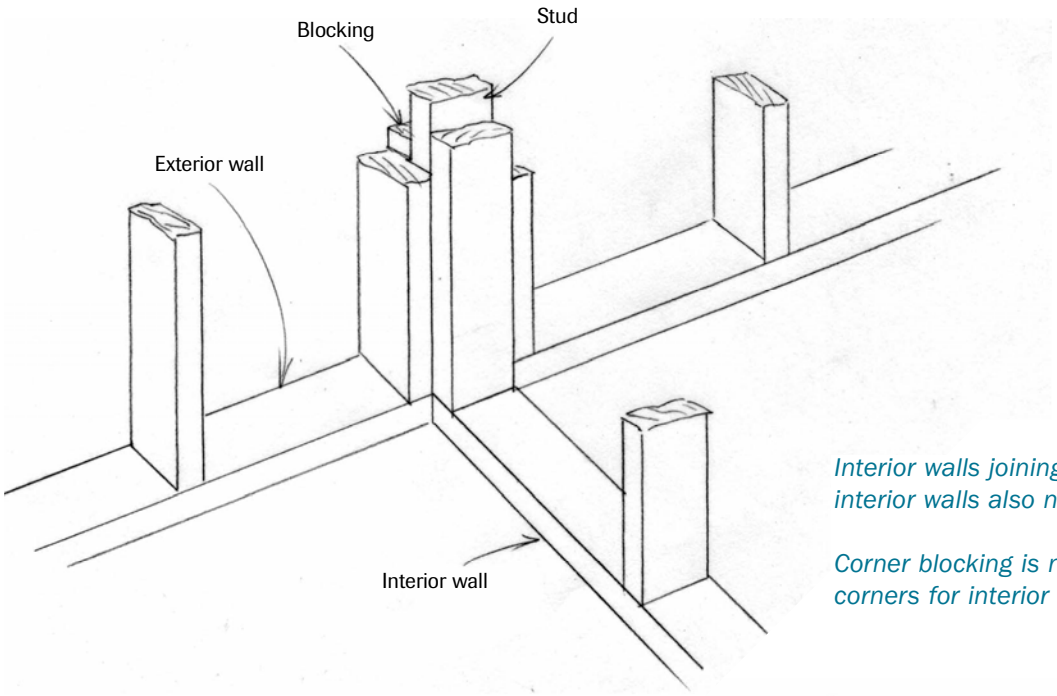



the studs on the previously erected walls. As with the other walls, openings are framed in the same manner and bracing applied. In any case these walls are erected between the two adjoining walls, plumbed and then anchored to the outside studs on the two adjoining walls. Brace the center section to keep it from bowing out or in.

If the building is not rectangular or square, but has extensions, construct these walls, joining at the corners, again basically creating two "sides" and then erecting the ends to join the opposite walls together. The tops of the walls at corners and wall section joints are joined by nailing a second top plate down over the top plate, crossing over all joints to tie them securely together. This second top plate creates the final wall height of a standard 8-foot wall.

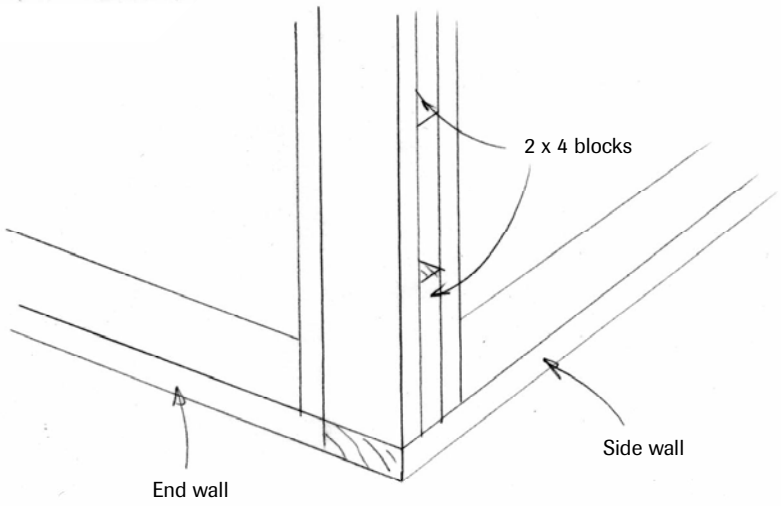
*Cut and remove the sole plate between door openings.*

Using a handsaw, cut and remove the section of sole plate at the bottom of each door opening. Corner blocking is added at corners to provide a square corner for installation of interior wall coverings. This may be done in several ways, as shown in the diagrams. Interior walls are framed, erected and anchored in place in the same way, again using a second top plate to tie them together and to the exterior walls. Corner blocking is needed at each interior wall corner to provide for fastening interior wall coverings. After




*Interior walls joining exterior or other interior walls also need corner blocking.*

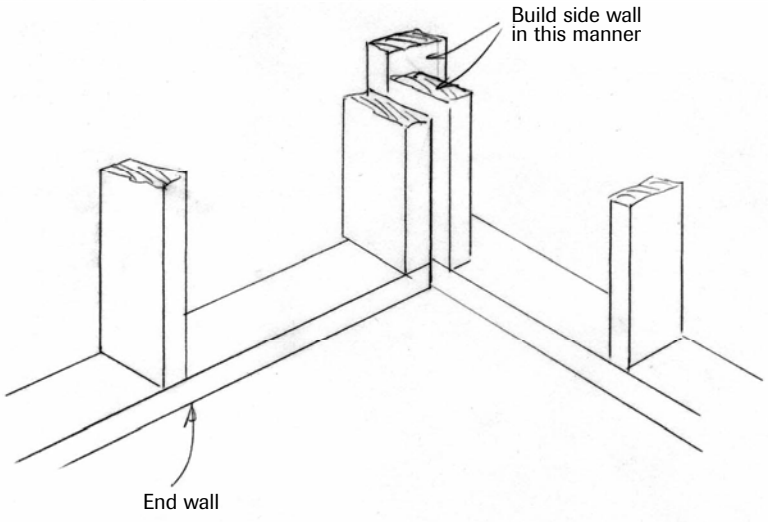
*Corner blocking is needed to create corners for interior wall coverings.*

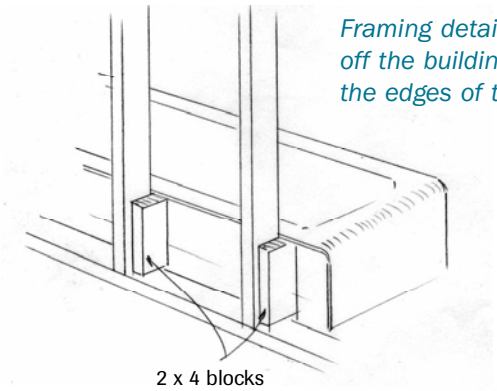



erection of the walls, you're ready to install ceiling joists on top of the walls. If constructing a second story platform-style, you simply repeat the entire process. Again constructing a floor on top of the walls, then constructing and erecting the second-story walls.

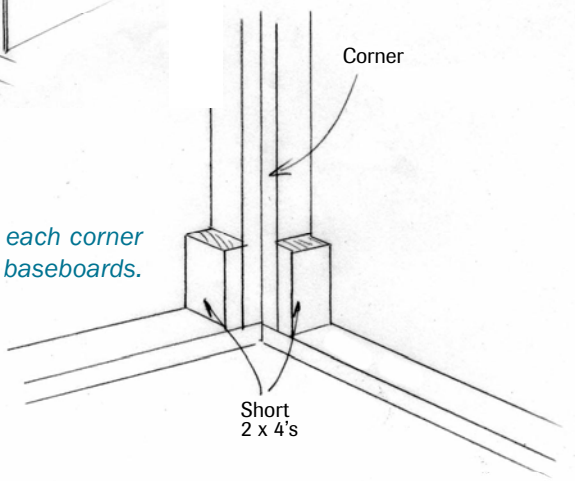
## FRAMING DETAILS

Framing details added during wall construction will make it easier to finish off a building. For instance you can add wall backing to any tub and faucet inlet areas, as well as wall-hung appliance locations. This will make it easier to install all of these and is easier to do during wall construction than after the walls have been erected. You can also add blocking to help support tubs. Some builders fasten in additional short blocking at each corner near the floor to provide better support for nailing baseboards in place. This






*Framing details can make it easier to finish off the building. Tub supports can support the edges of tubs.*




*Short corner blocks at each corner make it easier to install baseboards.*

allows you to nail the baseboards further back from their ends and prevent splitting out the ends. Bridging can be installed in the floor between joints during construction to create a better quality and "less squeaky" floor.

Framing a building doesn't have to be daunting if you take it one step at a time, follow plans and regulations and start simple. EHT

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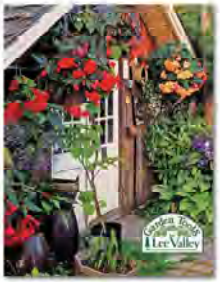

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# ROOF

*Ripping and replacing an old roof with new shingles.*

# TOP RIP-AND-RUN

**By Mark Clement**

I'm what you call a generalist when it comes to remodeling activities: If it's made of wood or you nail/screw it down, I pretty much build or install it. This means when the call comes to do a roof, I usually say yes.

My custom builder and high-end remodeler friends, however, look at me like I have three eyes when I tell them that I'm taking on a roof project. "Why?" they ask. Surely they're thinking of the often lower margins and highly physical work. Part of the answer is, of course, revenue. I'm in business to make money, and as a home-improvement contractor, that often results in working on just about every kind of project. But the other part of the answer might be a little darker: I like it.

It could be the adrenaline-addict rugby player in me trying to break a tackle and get out. It might be that I'm a little crazy. Or it might be that I'm seriously passionate about home improvement, which is true.

Whatever the reason, a customer called and told me their roof was leaking. What's more, they couldn't find a roofer who wanted to take on the project. See, in the "nothing's ever easy in the land of old houses" department, this roof was really only half a roof—one side of what we call a "twin" near Philadelphia, and what most others call a duplex. For reasons no one ever gave me, other contractors wouldn't touch it. So the customer called, and my dark side answered.

The re-roof job was hardly brain surgery. But it wasn't a conventional roof, either. Because of that, it became more remodeling than straight roofing and therefore—like all good remodeling projects—took lots of forethought. Most of mine went to determining how to handle the 2 tons of roofing material that I would strip and dump in the yard, how to store the new shingles prior to installation, and how to keep the customer's house dry during the tear-off. Ironically, putting on the new 30-year architectural shingles I had spec'ed for the job was the least of my worries.

## PREPPING THE SITE

If you haven't done much roof replacement but are inclined to take one on, know this: Tearing off shingles is pervasively messy. Shingles break into little pieces, nails fly everywhere, and try as you might, the shingles don't simply fall straight down off the edge of the roof. Instead, small

# ROOFTOP RIP-AND-RUN

chunks of shingle and paper catch an updraft and sail into the neighbor's yard, nails get projected into the customer's driveway, and heaps of falling asphalt-laden debris crush flower beds.

200 Feet of Black Plastic. To combat the total chaos that happens when you remove a roof system from the roof deck, I laid a 10-by-80-foot sheet of 3-mil black plastic around the base of the house. To do so, I cut the sheet from a 20-by-200-foot roll and folded the 20-foot dimension to create a double-layer, 10-foot wide length. It worked as a great gutter for almost everything that came off the roof.

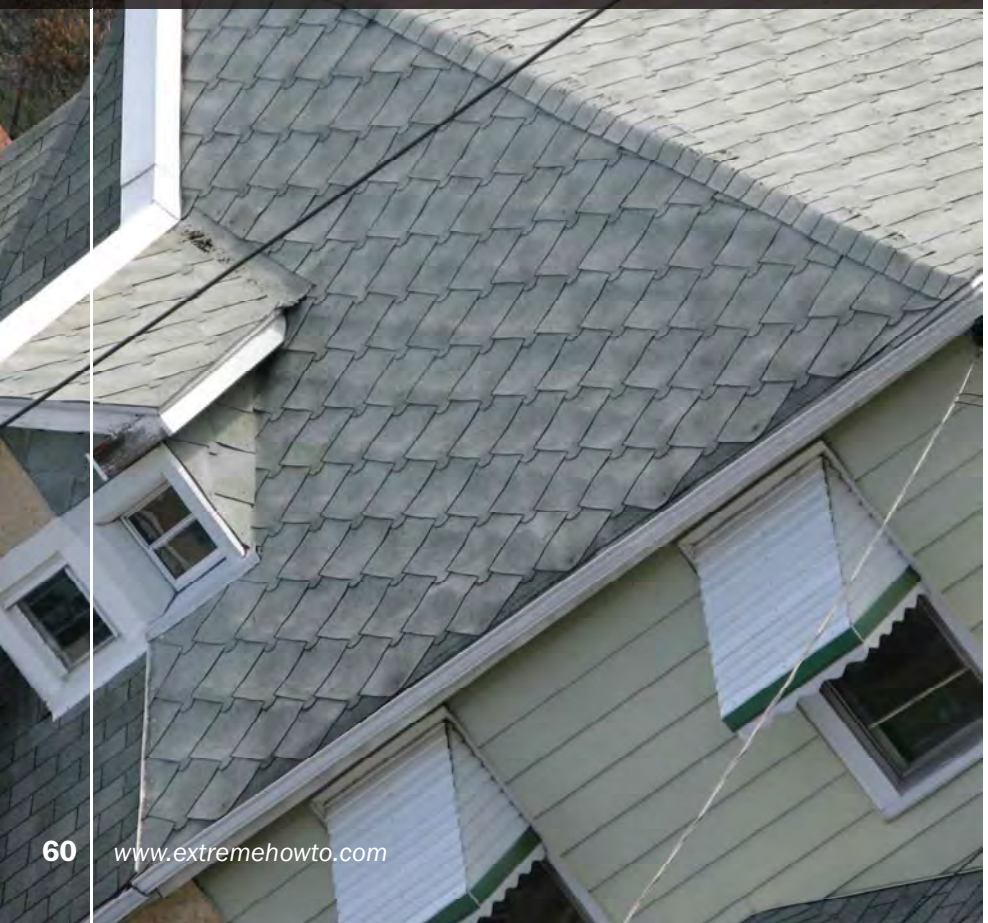
Between Me and the Ground. Safety is pretty much my main concern once I'm on a roof. And this one was a strong 8-pitch roof, meaning it was barely walkable. To add insult to potential injury, the asphalt shingles crumbled underfoot, which amounts to walking on a layer of tiny ball-bearings. So I spent a lot of time working on my knees. My main priority was to keep something between me and the ground–to create a work platform. To that end I used The Roofers' World Extreme Bracket, which I really liked. It's easily adjustable and can brace a 2-by-10 or 2-by-12 board.

I also used my own version of a walk board I call an L-bracket. Now, this has hardly been vetted by OSHA, but it beats a 2-by fastened to the roof deck for footing, which I see all the time. And it's simple: On my sites, I screw two 2-by-4s together in an L shape, and then screw them right down to the roof shingles or deck with 3-inch deck screws. Since the roof is coming off anyway, I don't care about the holes this causes. I like using the L-bracket because if I drop a tool, the addition of the vertical 2-by-4 usually catches it, while I've seen roofing guns skate right over a plain ol' 2-by walk board.

The L also provides surer footing, and I can lay a flat bar, cordless drill or shingle stripper on it without fear of a slight nudge pushing it off the roof. And as I move up the roof, the L-brackets are light and easy to re-position. I can also use them as a guide for rolling out tar paper.

**Tools.** I like that you don't need many tools to tear off shingles. I used The Roofers' World Red Ripper tear-off bar, and I really liked it compared to other strippers I've tried. I also ran the Bostitch RN-46 through the paces as my main nailer. I got the air that powered it from a Maxus X-Lite compressor, which was also aces. And I found a pair of safety glasses made by Head that I didn't mind wearing all day. (I bought the glasses for cheap in the racquetball section at Dick's Sporting Goods. Ironically, I don't really like them for racquetball.) For cutting the shingles, I used the RoofMates Shingle Saw—what a time saver.

*What do you get when you combine mangled "hurricane" shingles with over 80 year old asbestos tiles? You're right: a roof that not only looks terrible but leaks. This one had to go down to the decking.*



## DROP 'EM

Two courses of shingles covered this roof, and neither one was conventional. Of course, this created a problem that I only discovered as I took the shingles off. This is one of the shortcomings of being a generalist—or jack of all trades—rather than an expert at a single phase. See, the original shingle layer was diamond-shaped asbestos tiles. Laminated over the asbestos were diamond-shaped asphalt shingles, referred to as hurricane shingles.

While you may be thinking the asbestos was the problem, it really wasn't. The asbestos broke like a ceramic tile would—in big pieces and chunks. In other words, it didn't pulverize, which is when that stuff gets really nasty. No, the problem was that as I tore off the shingles, I couldn't find a clean line at which to stop at the end of the day. This meant there wasn't a really great spot to tuck my plastic under as the sun went down. I managed, but it took some serious finagling, and I'm lucky it didn't rain harder than it did at night.

**Strip-Tease.** I started out stripping from the top down, and this worked OK. In a couple of areas I stripped from the bottom up. This also worked OK.

When I attacked the shingles from the side, left to right, I started gobbling up huge chinks of material, easily doubling my output. I'm not

*Tucking plastic under and into this weave of diamond-shaped shingles proved to be a challenge. Everything was so brittle that it just smashed when I tried to lift the shingles and there was no clean line to tuck the fabric under. This was a surprise.*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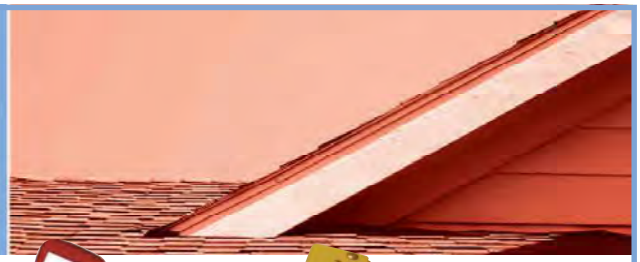

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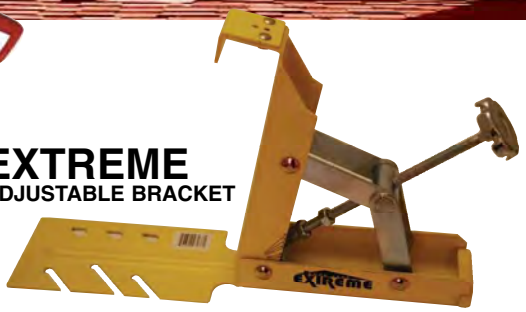

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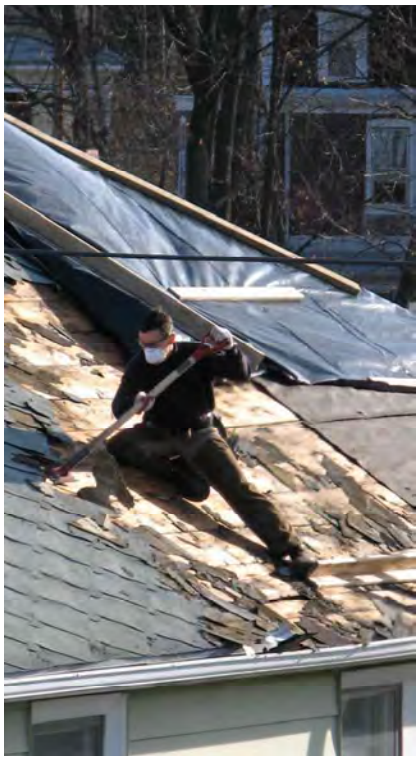
# ROOFTOP
## RIP-AND-RUN



saying a side-to-side tear-off works best on conventional roofing materials but it got me moving full-tilt here.

**Bag 'Em.** There was no way to get a truck or dumpster anywhere near where the shingles left the house, much to my (and my aching back's) dismay. This was the main reason for the plastic sheeting. I then used a coal shovel to load them into my new favorite demo tool—DemoBags. DemoBags are woven, re-usable/biodegrable-ish trash bags that are awesome. Unlike the 3-mil plastic contractor bags, you can load these puppies so heavy they're hard to lift—perfect for nail-embedded shingles. I even dropped them off the roof loaded with stuff, and they didn't burst. I then dragged the DemoBags into the driveway for haul-away later. And once I did haul the shingles to the dump I didn't dump, I poured the shingles out and now have the bags staged for my next demolition job.

### DAMAGE CONTROL

**Nail Off.** This particular roof deck had been through a zillion wet-dry/hot cold cycles. This

*I use an L-Bracket of 2 x 4's when I work on a roof. It provides better footing and a better gutter for tools and other items that would slide right past—and off—a simple 2-by on the edge walk board. I also had to wear a mask on this roof—not for the asbestos as you might think—but for the asphalt. The shingle backings had turned to dust and every time I pried them up, a cloud of dust blew in my face.*

The most important detail is that the roof doesn't leak.
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causes the solid sawn wood deck to expand and contract (unlike an engineered product like plywood, which is much more stable through temperature and humidity changes). As a result, a lot of the nails that held down the 1-by sheathing had worked their way proud—and I even managed to pull a bunch of them out with the Red Ripper. Bottom line: The roof deck needed to be nailed in its entirety. While this may not be a common occurrence, I mention it in case you're planning a roof replacement on an old house and need to manage a schedule, customer expectations or line items in a budget.

Deck Repair. I mentioned above that this roof had been leaking when my customers called me. The reason was that some of the sheathing near the eaves was pretty close to bark mulch and had to be replaced—

*Repairs were required all over this roof deck, and there's nothing to it but to do it. I grabbed some 1-by and made the repairs right there, no fuss, no muss.*

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# ROOFTOP RIP-AND-RUN

and there's nothing to it but to do it. Replace 1-by boards with the same kind of 1-by boards or cut 3/4-inch OSB to fit. I also found a number of boards that had simply broken at knots and had to be replaced so we had a solid nailing surface for the shingles.

## PLASTI-ROOF

If I was a full time roofer, I'd own a massive blue-poly tarp to dry roofs in. Alas, I'm not, so I used some of my 200-foot roll of plastic as my tarp. It worked great for drying the roof in overnight—even better, really—because I was able to screw it right down to the roof deck and lap shingles. I used 2-by-4s as battens and got a nice, if only temporary, seal to the weather.

## BLACK PAPER

As soon as I could clear a roof plane, I papered it with 30-pound felt. And if I had my druthers, I would have nailed it all with cap nails, because hammer tackers (for staples) often puncture the paper and can create leak points. However, the clock ticked fast, so I combined some cap nails—to hold the paper down if the wind blew hard—and staples, so I could get the thing papered fast. It worked nicely.

*Rain in the forecast meant getting this bad boy papered in double quick. To add a little heft against wind and rain while the shingles were off, I used 30# paper.*

*For the middle roof plane, I started the shingle sets in the center and worked my way out in either direction from there. After I got a few courses on—much easier from a ladder—I tucked in my brackets and proceeded up the roof from there.*

## SHINGLE TIME

With the shingles off and staged for hauling, I was finally ready to roof—my favorite part of this paid adrenaline fix.

**Edge It.** Step one is to install an aluminum drip edge, which I did from a ladder along the eaves. I tucked it under the paper and nailed it along the top edge. No fuss no muss.

**Shingles.** While you can cut your own starter strips from full shingles (as we did back in the old three-tab days), I simply used starter shingles. They saved a ton of time. Make sure to follow the directions on the packaging to ensure the proper offset from the shingles you're using.

On the front and back planes of the roof, I started my sets (or shingle ladders as some people call them) from the straight edge formed by the parapet between each half of the duplex. Once I had a set (a ladder of shingles with each ascending shingle cut 6 inches back from the one below it) I cruised across the roof plane. Once that set was done I started another. I found this to be the fastest, most efficient method for me.

I hasten to add that I integrated step flashing against the vertical parapet and dormer, as I would on any standard roof with a vertical penetration.

On the main roof plane, bordered on the left and right not by a square edge but by a hip rafter, I started my sets in the center.

The set that ran left to right was just like any other—I offset the

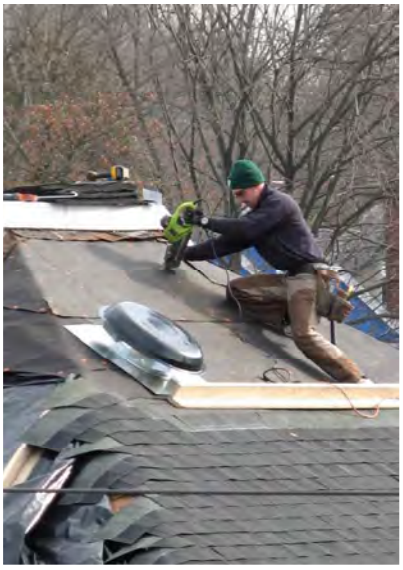
shingles and went to town. The set that ran right to left, however, was a little different. Because the set ran up the roof plane like a flight of stairs, I had to tuck the ends of the shingles headed to the left under the shingles that were already there. It was no big deal, and this enabled me to work on large runs of shingles in both directions on the roof—especially nice for the first 1/2 dozen courses, which are most easily installed from a ladder.

At the highest, most central point in the main roof plane is the spot for the attic fan. While the pros at my roofing supplier were of mixed opinions that an attic fan lengthens the shingle life (ideally, attic fans help the roof system breathe), they were all in agreement that a fan lowered the summertime temp. And while I could get a solar-powered fan, my customer chose a hardwired unit from GAF.

At each hip, I ran the shingles wild over the side. After they were all installed, I snapped a line straight up the hip rafter and then trimmed them all off with a circular saw set to depth.

Along each hip rafter I cut shingle caps from color-matching three-tab shingles. You can use a utility knife for this, but forget that! I hogged through stack after stack using my circular saw and a blade I never want to see again. It was tough on the saw, but it saved me hours.

On the final, exposed nail head on the last shingles, I used BlackJack roof sealant to seal them from the weather. Don't skip or skimp on this step.



*I ran each plane of shingles wild over each hip rafter, then snapped a line and cut to fit, right over the center of the rafter. That seam was covered with shingle caps.*

*An attic fan should go as high as possible and as centrally located as framing will allow. The jury is out on whether it helps the roof system last longer, but all seem to agree that it can lower the attic temperature during the summer time.*

## FINAL CLEAN-UP

I started my clean-up on the roof and worked my way down. I blew any remaining debris off the new roof with my gasoline-powered blower. Next, I cleaned out the gutters. As part of the gutter clean-out I dragged a garden hose topside and shot it down each downspout to make sure they were clear. Good thing I did, because one of them was totally clogged. Spraying it out with a hose prevented a call-back.

**Fine Tooth Comb.** I made sure to "fine-tooth comb" the yard, especially the driveway and street—anywhere there might be nails and tires. And once I did a visual inspection, picking up what I could see, I used a stiff broom to sweep the area. I wrapped up using my gasoline powered blower to make triple sure there weren't any nails or debris.

**Haul Away.** I paid 80 bucks a ton to dispose of the shingles at a local transfer station, and we had just a little over 2 tons of material. We trucked the material in my 5-by-10-foot Star utility trailer that I've rigged up with sides. I love that little trailer. It is a total workhorse.

The shingles were DemoBag-ed. When I ran out of those, I used 3-mil plastic contractor bags, several of which I had to double-bag because they couldn't handle the combination of sharp contents and weight.

**Surprise.** If I were to do this again, the only thing I'd do different is protect the items in the attic of the house I worked on. See, dust

# ROOFTOP RIP-AND-RUN

and debris found its way through the gaps in the roof's deck boards, coating everything in the attic. It's also worth pointing out that if you cut a ridge vent into a standard roof, the same thing will happen. Beware of this and take appropriate measures. At the very least, if you're doing this for a client, warn them it'll happen.

This roof took about 11 days of prep, actual work and weather delays. While I did most of the work alone, another worker really helped for four of the 10 days and was well worth paying for.

By the end of my rip and run, I felt good, but I had run out of gas. I'm looking forward to a nice, inside and low-to-the ground trim project. **EHT**

*I treat a dormer as a tiny roof. It gets step flashing along its wall and I weave in the valley for a water tight system.*

*Shingle caps seal up things along the hips. They're cut from 3-tab shingles. To reach production speed, I used a circ saw and plowed through a zillion of them at a time. It's tough on the saw, but tougher on the shingles.*

**Editor's Note:** *Mark Clement is a remodeler and author of* The Carpenter's Notebook, A Novel. *www.TheCarpentersNotebook.com. He lives in Ambler, Penn.*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# What Lies Beneath

*EHT* explores the underdogs of the flooring market: subfloors and underlayments.

*Modular floating subfloors protect basements from cold and moisture.*

**By Matt Weber**

The market for flooring materials is vast and has been expanding by leaps and bounds ever since mankind decided that bare dirt underfoot just didn't jibe with the interior décor. From plush carpet to contemporary tile to classic hardwoods … From linoleum to laminates to cork—even natural fiber—the choices and materials for flooring seem endless. Yet, to keep any material looking new and performing longer, you have to start with a strong foundation, the subfloor.

## SUPERIOR SUBFLOORS

When most homeowners think of flooring, they think of finished floors. However, it's foolish to overlook what's hidden beneath a flooring system. For example, consider the case of finishing a basement on a concrete slab. Concrete notoriously transfers moisture, so you should never install carpet or wood directly over a bare slab; they'll ruin in no time. Flooring experts generally recommend against installing traditional plank hardwoods below grade, because the changes in moisture can shrink, swell, warp and generally ruin the floor. Engineered or laminate flooring is a better choice in this case.

There are two typical methods to create the subflooring to protect from this dampness: Plywood-on-slab and "Sleepers." The plywood should be 5/8-inch or thicker panels. "Sleepers" are 2-by-4 lengths of wood on the slab spaced 16 inches on center. But first, begin either method by covering the slab with a vapor barrier. You can cover the entire slab with 4- to 6-mil polyethylene film, overlapping the edges 4 to 6 inches, and allowing the sheeting to extend under the baseboard on all sides. Install either the plywood or sleepers. Before installing the finished floor, cover the plywood with either building paper or asphalt paper; cover the sleepers with an extra layer of polyethylene.

To make installing the subfloor situation easier to accomplish, you can opt for a floating subfloor system. These newer systems consist of sturdy 2-by-2-foot OSB panels manufactured with a raised, rigid moisture barrier bonded to the underside of the panels. Depending on the manufacturer, the moisture barrier is made of polyethylene or closed cell polystyrene (Styrofoam). The raised channels created by the cleats of the barrier allow air to flow underneath the subfloor system keeping floors warm and dry. The airspace also functions as a layer of insulation between the cold, hard concrete and the finished floor. The panels interlock easily in a tongue-and-groove fashion and require no fastening or gluing. Plus, the panels are engineered to allow uniform expansion and contraction with changes in temperature and humidity.

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*The Barricade system from OvrX includes not only modular subfloor panels, but also wall panels.*

In fact one company, called OvrX, takes this idea a step further. Not only does OvrX offer Barricade modular subfloor panels, but also insulated wall panels for moisture protection on below-grade walls.

A similar concept comes from Cosella-Dorken's Delta-FL product for laminate floors in basements. However, instead of tongue-and-groove panels, the Delta-FL product comes in rolls; it's a gray, heavy-weight plastic moisture barrier with "dimples" to create the insulating air pocket. Just unroll the barrier on top of the concrete floor and overlap at the seams for protection against dampness. Then apply a layer of foam overtop, followed by interlocking laminate panels. It creates a slightly resilient floor surface, comfortable for walking, but strong enough to support weights of up to 5,200 pounds per square foot. The finished floor measures about 1 inch high.

## SOFTER SOLUTION

For carpeted floors a new type of sound-absorbing carpet underlayment, developed in-house by the Acoustics Division of American Micro Industries, addresses two common sound control challenges. Each type of noise requires different types of sound control methods. The product, dubbed the Step Above Impact Barrier, consists of two different materials—a cotton blend and a vinyl content sound barrier. One component of the underlayment reduces the airborne sound transmission between the floors of a building, such as voices, radios and conversation. The other

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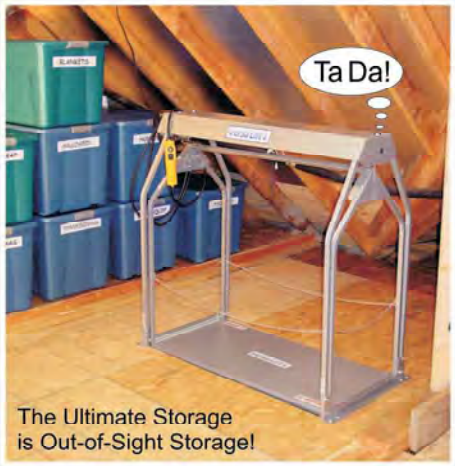


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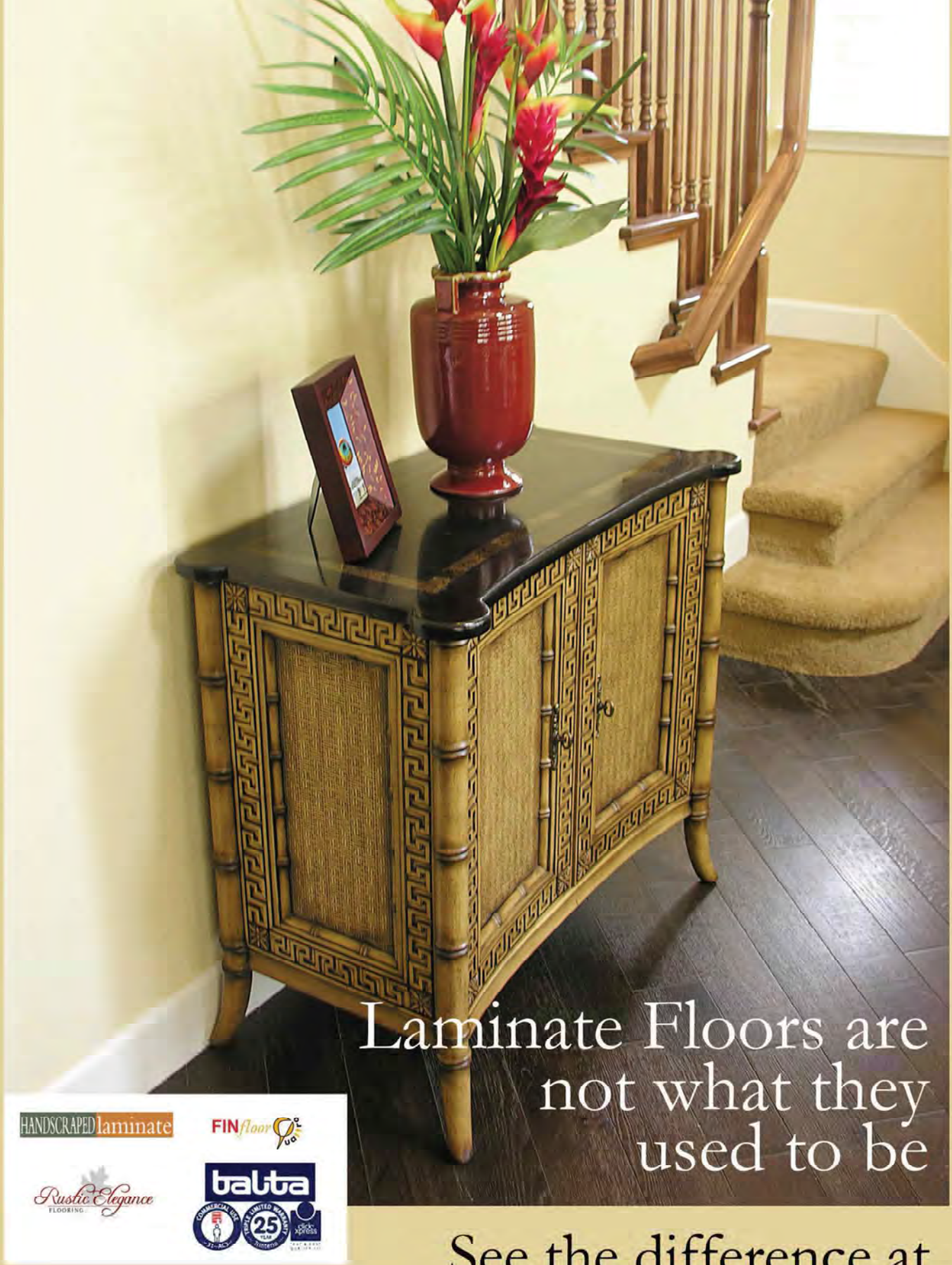
component of the underlayment reduces impact noise transmission, like footsteps, percussion instruments and vibration from appliances or machinery—noise that radiates through the structural parts of buildings.

And, "green" builders take note: By minimizing impact, the barrier also increases the life expectancy of carpet flooring, which in turn reduces the burden on landfills. Furthermore, preliminary testing indicates Step Above can be reused when carpets are replaced, and its cotton component is made with a 60-percent recycled blend. The 4-by-8-foot sheets are easily cut to fit with basic hand tools.

## DEPENDABLE TILE

To preserve the structural integrity of ceramic tile and natural stone

*Cosella-Dorken's Delta-FL product comes in easy-to-install rolls to protect interlocking laminate floors installed over concrete slabs.*

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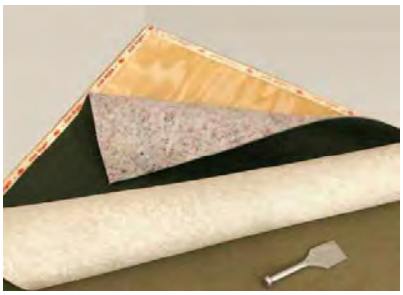

*For installation beneath carpet, the Step Above Impact Barrier consists of two different materials to reduce both impact and airborne sound transmissions.*

floors, DITRA from Schluter Systems is an uncoupling membrane that is only 1/8-inch thick and weighs 2 ounces per square foot. The uncoupling layer allows the tiled surface to move independently of, or be 'uncoupled' from, the subfloor to prevent cracks in the tiles and grout.

The theory behind the system is ages old; the secret of large tile and marble floors that have lasted for centuries lies in the fact that there was no direct bond between the floor covering and the building structure. The uncoupling layer used in the past was a bed of sand between the mortar bed of the tile and the subfloor. Much easier to install than sand, DITRA is a polyethylene membrane with a grid structure of square cavities, each cut back in a dovetail shape, with an anchoring fleece laminated to its underside. The underlayment is rolled in place over a bed of thin-set, with the tile installed on top. The membrane allows construction materials beneath the tile to breathe, but is impervious to water so floors and ceilings won't be damaged by spills and leaks. The system is designed for use on the most commonly used subfloor materials—plywood, OSB, concrete and gypsum-based screed. **EHT**

**Material Resources**

American Micro Industries
www.americanmicroinc.com

Cosella-Dorken
www.cosella-dorken.com

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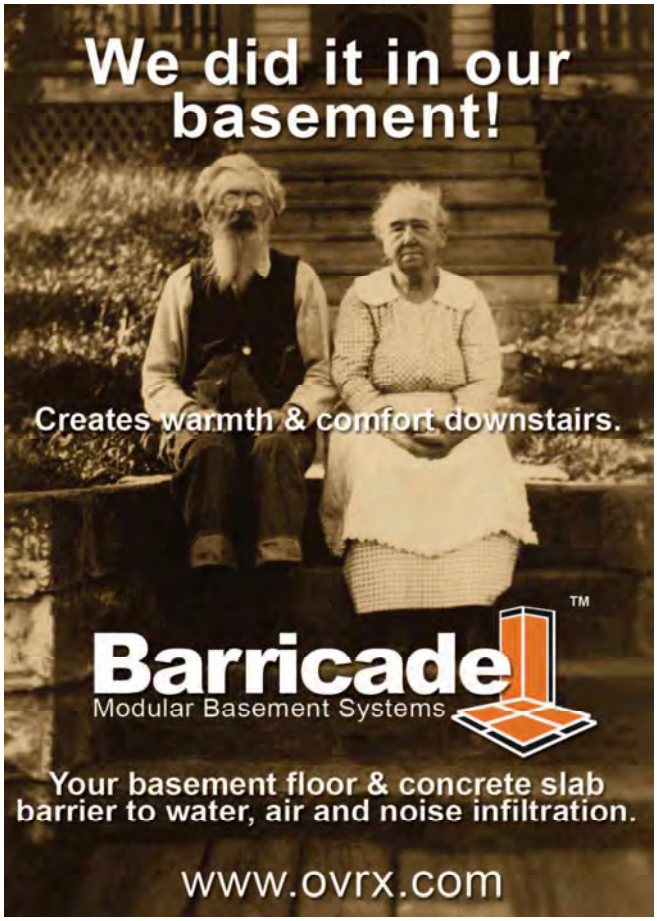
*The DITRA product from Schluter Systems creates an uncoupling layer that allows the tile floors to move independently of the subfloor, preventing cracks in the tiles and grout.*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# The Laminate Flooring Boom

## Your Free Shopping Guide

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Laminate flooring has remained one of the fastest growing home improvement trends for the last two decades. In fact, sometime in the next year, laminate flooring is projected to outsell wood flooring. Laminate flooring has also been showing up on many TV home improvement shows from "Flip That House," "Designed To Sell," "Sell This House," and "Trading Spaces," just to name a few. Even Bob Villa installed laminate flooring in his home. So what does everyone else know that you don't?

The laminate flooring boom has been driven by several compelling factors including; its outstanding performance, low (relative) cost and ease of installation. In fact, most homeowners install it themselves. Even someone without laminate flooring experience can often install a room full of laminate in a day. The cost per-square-foot is generally much cheaper than hardwood (even if sweat equity isn't a factor). And, a laminate floor will last many years without needing waxes, sealers, or refinishing of any kind. Usually just a dust mop will do the trick.

Since the laminate flooring market has grown so quickly, a lot of people don't know how to shop for laminate flooring or what features they should look for. Additionally, manufacturers have been quick to expand their product lines to fill almost every taste and budget. Unfortunately, most sales people have not kept pace with the new features and developments in the laminate flooring industry and, worse still, some manufacturers have learned to market and pass off their "budget" lines as "first grade."

If you're considering buying laminate flooring, you should take a few moments to find out about the features and components that make up a laminate floor. Then decide which features are best for you and your situation. Much like the 5 "C's" when shopping for a diamond, there are several key components that you need to look for when shopping for your laminate floor to ensure that you get the quality and value you're looking for. Here are the basic features and the difference they will make in your floor.

### THE CENTER OF THE LAMINATE FLOORING —THE CORE

Just as you wouldn't build your home on a weak foundation, you wouldn't want to build features on a weak board. The core density is the single most important component in your laminate flooring. You want a core made with the highest density material possible. Not only does this make your locking mechanism stronger, since it is an extension of the core, it also makes it more difficult for water to penetrate the flooring. Softer boards are more porous like a sponge and will sustain more damage more quickly than a harder board.

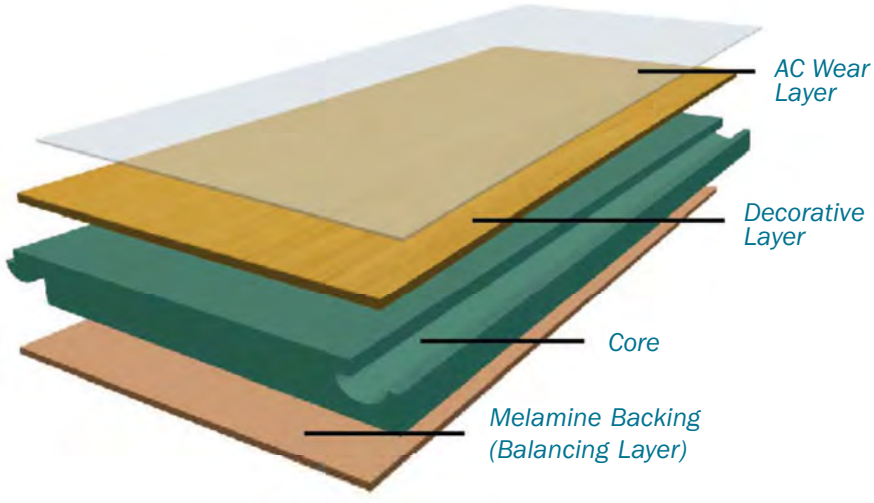
The denser or harder the board, the better it will be able to resist dents and deep scratches. Most people seem to prefer the sound of a denser board, and claim that it sounds more like hardwood.

Since almost all laminate floors are made from a high density fiberboard (HDF) you'll need to determine where on that spectrum of HDFs your board lands. Some manufacturers will list the density with a kilogram (kg) measure, with the low landing measuring in the high 700 kg range and the high landing measuring in the 900 kg range. You will see more manufacturers listing their board density when it is above the 850 kg range and those manufacturers with boards softer than that are less eager to publish their densities. If the manufacturer or salesperson is not forthcoming with that information, you may have to find your own method of testing the board density, or choose to work with a more forthcoming company. I recommend that you take samples of all the boards you are considering, and hit them all with a hammer, smack the corners or throw them into a bucket of water for an hour or two. You'll be surprised at the difference in the way the board handles these tests. And if a board is not going to stand up to your abuse, you probably don't want it on your floor.

## THE SURFACE WEAR LAYER AND TEXTURE

One of the key features of laminate floors is its extremely durable, clear, wear layer. Made with aluminum oxide and applied in the factory, this wear layer will last many years having shoes and other objects drug across it countless times. Better still, it can even take on pet claws and come out the winner. The wear layer can come with a number of finishes from a very glossy flat "piano finish" to the more popular "embossed" finishes, where you can see the outline of a wood grain in the reflection. Some manufacturers have products with the embossing lines matching the colored grain lines underneath exactly, which is called a "registered embossed" finish. Other manufacturers have brought out specialty finishes, like the hand-scraped finish, that has the wear layer applied over an irregular board that gives it a more earthy or rustic look. Manufacturers have also found great success cutting a bevel on the edges of the board setting apart the individual boards. This "V-Groove" as it is called, also has the benefit of helping to disguise the swelling of an ill used floor. Since a floor that has been subjected to too much moisture will usually swell at the joints, it is always more visible with a flat-seam floor than a "V-Groove" floor. If you do buy a floor with a "V-Groove", check to see if the small angle is painted or "banded." A painted edge is sometimes more porous and will hold stains.

The most important feature of the wear layer is its longevity. Here again there is a range of possibilities. Lab techs have come up with a measure for how long the floors will last before being worn down by the abrasion of countless footsteps and other wear on your floor. This measure is called the Abrasion Coefficient, or AC Wear Rating. As impressive as the name sounds the test is fairly simple. A sanding machine with a specific grit of paper is placed on the wear layer with a specific weight on top. Then they time how long it takes to wear through the wear layer and give it a rating number. The lowest AC rating you'll probably find is an "AC-2." If another wear layer tested lasts 60% longer than the AC-2, it gets a rating of "AC-3," and if another lasts 60% longer than the AC-3 it gets the rating of "AC-4." Most people wouldn't recommend you use an AC-2 wear layer in any room but a guest room, or



an area with very little traffic, while an AC-3 is rated for the whole house. An AC-4 is rated for light commercial applications and is better suited for high traffic homes, or homes with large families or pets.

## THE LOCKING MECHANISM

Originally, laminate floors were glued together, which was a messy, time-consuming job. Soon manufacturers developed new mechanisms to hold the boards together. The first locking mechanisms were knocked together while laying flat. While installing these new floors was much quicker, some found that over time the boards could "slide" back apart. The latest and generally agreed as the best system for installing and holding the boards together uses a locking mechanism that pivots one board into the other. Once the new board is "rolled down" into the previous row, it will not come apart, allowing the easiest installation and the best holding power. If some years later, you need to replace a board, you can "roll up" however many rows of boards needed until you reach the board(s) you want to replace, and then reinstall the boards removed. (This is why it is always a good idea to keep some extra boards, since this type of laminate floor allows you to replace part of your floor without having to replace the whole floor.)

Some manufacturers are also using a wax sealer on the locking mechanisms. This new addition has two benefits. The most talked about benefit is that it makes it much harder for surface spills to penetrate into the board. Since surface moisture can, at times, work its way into the joints between the boards, having a wax seal provides another layer of protection. Another benefit to the wax seal is that it prevents the wear within the locking mechanism, from the tiny movement under countless footsteps.

## THE BACKING

Most of the floors available today have a backing material. Typically this will be a melamine layer (the same material that you'll find in the interior of modern cabinets). This backing is an important feature that will help protect the underside of your floor from moisture, provide another sound barrier and "balance" the boards. Since changes in temperature and humidity make the laminate floor expand or contract a small amount and the tough wear layer is less likely to move, a floor without the backing will tend to "cup" in one direction or the other. Having the backing balances the bottom and the top so that the expansion and contraction happen more evenly across the board.

## THE BOARD THICKNESS

Early laminate floors were almost exclusively 8mm or thinner. Today you will find more floors in the 12mm range. As mentioned earlier, the thicker boards tend to "feel" and often "sound" more like hardwood floors, if they are made of a dense material. The thicker boards also allow the floor to have a bit more substantial locking mechanisms.

## 1-STRIP (FULL PLANK), 2-STRIP, 3-STRIP

There are three standard strip designs that you will want to consider. When laminate first came out, it was mostly 3-strip. This means that each plank of wood had the "look" of 3 strips of wood. Today, there is a 2-strip pattern, which means each plank of wood has the "look" of 2 strips of wood. And, the most popular and most authentic looking laminate floor is a full plank or 1-strip (single plank). This means that each plank has its own grain pattern. Full plank flooring is usually synonymous with the best quality of laminate flooring. The problem with 2- or 3-strip laminate is that they typically have fat seams and over time those seams accumulate dirt, especially in lower quality wood floors. Also, those seams stand out, which makes the *fake* seams in between the 2 and 3 strip flooring look really different, most likely indicating that your floor is not authentic. With full-plank floors, your seams will wear more evenly, and therefore look consistent throughout your floor.

## FLAT SEAM VS V-GROOVE

The difference between a flat seam and a v-groove or beveled edge, is that a flat seam feels and looks smooth and flat. The disadvantage is that often, flat seams are found in lower quality products and typically are not truly flat or even. They also tend to show more wear over time and swell more with moisture, making the seams even more obvious. V-Groove is where the seams have a small "V shape" between each seam. This V-groove can be on 2 sides or all 4 sides of each plank. The most realistic look is the 4-sided V-groove. Some people have expressed concern about dirt getting trapped in the V-grooves making it difficult to clean. Ironically the V-groove was introduced specifically to collect

the dirt from the floor so that it isn't rubbed into the floor causing damage. The debris that is collected is easily swept away with a broom, or removed with a solid surface flooring vacuum or attachment.

Price is not always a good determining factor when trying to buy a quality product. You have to consider your time in shopping for your floor, clearing the room, removing your old floor covering, installing the floor and replacing all the furniture in the room. Always shop for the best bargain, but be sure not to skimp on quality. And make sure that you select a floor that will endure the daily wear and tear that your family will surely put it through.

The internet is a huge growing resource for purchasing high quality laminate flooring at warehouse prices. Since warehouse space it relatively inexpensive compared to retail space, and most internet companies can run very lean, they are able to pass that savings on to their customers. This is why you can typically get laminate flooring products that are of far superior quality for less online, than you can buy the lower grade laminate at your local Home Depot or Lowe's.

The only downside to purchasing online is the inability to see the product color and quality in person. Companies that are confident they are selling top quality products will typically send you samples of their products free of charge.

If you would like to speak with professional flooring installers and ask more detailed questions, call the professional Laminate Flooring Installers, free of charge at 800-603-0727. EHT

# HOT PRODUCTS

## LEFT-BLADE CIRC SAW FROM BOSCH

Bosch manufactures some fine power tools, and the new 7-1/4-inch CS5 Left-Blade Circular Saw is no exception. Most users are right-handed, and the CS5 is built around a left-side blade configuration for the clear line-of-sight of an in-line design circ saw and the maneuverability of a sidewinder. Bosch has also designed the CS5 to be the fastest cutting saw in its class with a 15-amp motor that delivers 6,200 RPM. At only 10 pounds, the saw still has plenty of power to slice through 3/4-inch plywood and other dense materials. It offers a 56-degree bevel capacity, an anti-snag lower guard and an improved spindle lock that makes blade changes quick and easy. The CS5 also comes complete with a 24-tooth carbide blade and a blade wrench, and it retails for only $99. Visit www.boschtools.com or call 1-877-BOSCH-99.

## PREMIUM GREAT WHITE BLADES

The tooth geometry of Klein Tools' Great White premium reciprocating blades offers faster cutting with less vibration. To meet a variety of cutting applications, the blades are 1-inch wide and available in blade lengths of 6, 9 and 12 inches. All Klein Great White reciprocating blades have a bi-metal design for high production and longer blade life. The different blades can cut through wood, wood with nails, and thin or thick gauge metal. In 1857, Klein Tools' founder and blacksmith, Mathias Klein, forged the first-known U.S.-made pliers in Chicago, and today Klein Tools are still made in the USA. Visit www.kleintools.com or call 1-800-553-4676.

## FLOORING JACK FOR EASY INSTALLATION

Cepco Tool Company offers the new QuikJack Hardwood Flooring and All-Purpose Construction Jack. Bowed boards are extremely frustrating when installing hardwoods, particularly when the nailer isn't powerful enough to drive them together. There is also the infamous difficulty of laying the last few boards near a wall. The new QuikJack tool assists in joining every board on a typical floor, including the last board. The jack will work over any surface, wood or masonry. The jack is very portable and operates quickly. Pushing a bowed wall plate is a breeze. When laying out flooring away from a wall, the jack slides along a 2-by-4, and will self-lock along the 2-by-4 at any position. The 2-by-4 acts as a strut, which presses against the opposite wall or temporary brace.If pressing against a finished wall, another 2-by-4 is used as a bearing plate to avoid wall damage. The new time-saving QuikJack is available for $159.00 at www.cepcotool.com or call 1-800-466-9626.

## INTELLIGENT SUMP PUMP BACKUP SYSTEM

A new self-testing sump pump system called The Protector DualCom System alerts homeowners of sump-related problems before a damaging flood occurs. The system actually calls or emails the homeowner if it detects trouble. Sump pumps are designed to pump water out of a sump pit located in a basement. As water collects in the sump from drains outside the foundation of the home, it must be removed after it reaches a certain level or the basement will flood. Each Protector DualCom is equipped with a computer control unit that self-tests every part of the system every 12 hours. If any failure is detected, the homeowner is notified via email and/or telephone within five minutes. The system also boasts complete redundancy and doubles the capacity of other systems because it includes dual pumps, dual batteries and dual sensors—and comes with a five-year warranty. For more information, contact Basement Flood Protector, Inc. at www.floodnot.com or call 866-459-7159.

## WALL-MOUNTED STORAGE SOLUTION

Wall Control offers wall-mounted storage solutions for your home, garage or workshop. The strong, steel panels will not warp, fray or crack. Available in a wide range of attractive finishes and colors, they're ideal for use in any room. The panels are complemented by a complete line of hooks, brackets, shelves and accessories. A unique, patented design ensures the tool holders are securely engaged. The combination-style panels will also accept conventional 1/4-inch round pegboard hooks, and all the steel panels will retain magnets. The 16-by-32-inch modular panels are easy to install, and available individually or in pre-packaged kits at www.wallcontrol.com, (770) 723-1251.

# HOT PRODUCTS

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